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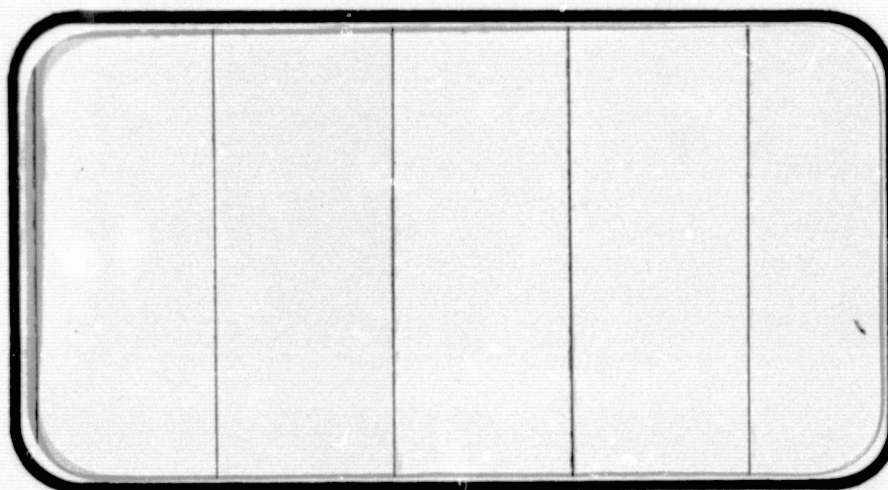
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(NASA-CR-141798) RESULTS OF AN EXTERNAL
TANK SEPARATION TEST IN THE AEDC/VKF TUNNEL
B OF AN 0.010-SCALE REPLICA OF THE SPACE
SHUTTLE VEHICLE MODEL 52-OT (IA17A), VOLUME
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SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANAGEMENT services

SPACE DIVISION



CHRYSLER
CORPORATION

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VOLUME 2 OF 3

RESULTS OF AN EXTERNAL TANK SEPARATION
TEST IN THE AEDC/VKF TUNNEL B ON AN
0.010-SCALE REPLICA OF THE
SPACE SHUTTLE VEHICLE MODEL 52-OT
(IA17A)

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by

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WIND TUNNEL TEST SPECIFICS:

Test Number: AEDC Tunnel B VA422
NASA Series Number: IA17A
Model Number: 52-0T
Test Dates: 6 through 15 March 1974
Occupancy Hours: 37

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RESULTS OF AN EXTERNAL TANK SEPARATION TEST IN
THE AEDC/VKF TUNNEL B ON AN 0.010-SCALE REPLICA OF
THE SPACE SHUTTLE VEHICLE MODEL 52-OT (IA17A)

by

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ABSTRACT

Tests were conducted in the AEDC/VKF Tunnel B on an 0.010-scale model of the Space Shuttle Orbiter and External Tank to determine the aerodynamic interactions during a "Return to Launch Site" (RTLS) abort separation. The Orbiter model was built to vehicle 3 configuration lines (139B) and the ET model approximated the vehicle 5 configurations with protuberances and attach hardware.

For these investigations the Orbiter was mounted on the primary support system and the external tank was mounted on the Captive Trajectory System. Six-component data were obtained for each vehicle at various Orbiter angles of attack and sideslip for a range of relative angular and linear displacements of the ET from the Orbiter.

TABLE OF CONTENTS

	Page
ABSTRACT	iii
INDEX OF MODEL FIGURES	2
INDEX OF DATA FIGURES	3
INTRODUCTION	8
NOMENCLATURE	9
REMARKS	13
CONFIGURATIONS INVESTIGATED	14
TEST FACILITY DESCRIPTION	15
TEST PROCEDURE	16
DATA REDUCTION	17
TABLES	
I. TEST CONDITIONS	18
II. DATASET/RUN NUMBER COLLATION SUMMARY	19
III. MODEL DIMENSIONAL DATA	44
FIGURES	
MODEL	65
DATA	75
(VOL. 1 - FIGURES 4-22)	
(VOL. 2 - FIGURES 23-51)	
APPENDIX	75
TABULATED SOURCE DATA (VOLUME 3)	

INDEX OF MODEL FIGURES

Figure	Title	Page
1.	Axis systems.	
a.	General	65
b.	Tank Separation From Orbiter	66
2.	Model sketches.	
a.	Orbiter/Tank Mated Configuration	67
b.	Orbiter Configuration	68
c.	External Tank Configuration	69
d.	External Tank Protuberances	70
3.	Model photographs.	
a.	Mated Position	71
b.	Near Separation Position	72
c.	Median Separation Position	73
d.	Large Separation Position	74

INDEX OF DATA FIGURES

FIGURE	TITLE	CONDITIONS VARYING	PLOTTED COEFFICIENT SCHEDULE	PAGES
VOLUME 1				
FIG. 4	ORBITER AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 5.93, ELEVON = 0)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	1-98
FIG. 5	ORBITER AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 5.93, ELEVON = 15)	↓	A	99-126
FIG. 6	ORBITER AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 5.93, ELEVON = -20)		A	127-154
FIG. 7	ORBITER AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 5.93, ELEVON = -40)		A	155-182
FIG. 8	ORBITER AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 5.93, AILERON = 15)		A	183-210
FIG. 9	ORBITER AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 7.98, ELEVON = 0)	DLT-X,DLTALF,GRID BETA,PO,ALPHA	A	211-284
FIG. 10	ORBITER AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 7.98, ELEVON = -20)	DLTALF,GRID,ALPHA	A	285-296
FIG. 11	ORBITER AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 7.98, ELEVON = -40)	DLTALF,GRID,ALPHA	A	297-308
FIG. 12	ORBITER AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 7.98, AILERON = 15)	DLTALF,GRID,ALPHA	A	309-320
FIG. 13	ORBITER AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, ELEVON = 0)	DLT-X,DLTALF,GRID, DLTBTA,BETA,ALPHA	A	321-428
FIG. 14	ORBITER AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, ELEVON = 15)	DLT-X, DLTALF,GRID, BETA, ALPHA	A	429-456

INDEX OF DATA FIGURES (Continued)

FIGURE	TITLE	CONDITIONS VARYING	PLOTTED COEFFICIENT SCHEDULE	PAGES
FIG. 15	ORBITER AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, ELEVON = -20)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	457-484
FIG. 16	ORBITER AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, ELEVON = -40)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	485-504
FIG. 17	ORBITER AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, AILERON = 15)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	505-532
FIG. 18	ORBITER AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 7.98, ELEVON = 0)	DLT-X,DLTALF,DLTBTA, BETA,GRID,ALPHA,PO	A	533-610
FIG. 19	ORBITER AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 7.98, ELV = 0, LOWER PO)	DLT-X, DLTALF	A	611-614
FIG. 20	ORBITER AERO CHARACTERISTICS (DELTA-Y = 200, MACH = 5.93, ELEVON = 0)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	615-668
FIG. 21	ORBITER AERO CHARACTERISTICS (DELTA-Y = -60, MACH = 5.93, ELEVON = 0)	DLT-X, DLTALF	A	669-674
FIG. 22	ORBITER AERO CHARACTERISTICS (DELTA-X = 0, MACH = 5.93, ELEVON = 0)	DLT-Z, DLTBTA	B	675-680
<u>VOLUME 2</u>				
FIG. 23	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 5.93, ELEVON = 0)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	681-778
FIG. 24	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 5.93, ELEVON = 15)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	779-806
FIG. 25	EXTERNAL TANK AERO CHARACTERISTICS DELTA-Y = 0, MACH = 5.93, ELEVON = -20)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	807-834

INDEX OF DATA FIGURES (Continued)

FIGURE	TITLE	CONDITIONS VARYING	PLOTTED COEFFICIENT SCHEDULE	PAGES
FIG. 26	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 5.93, ELEVON = -40)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	835-862
FIG. 27	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 5.93, AILERON = 15)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	863-890
FIG. 28	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 7.98, ELEVON = 0)	DLT-X,DLTALF,GRID, BETA, PO, ALPHA	A	891-964
FIG. 29	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 7.98, ELEVON = -20)	DLTALF,GRID,ALPHA	A	965-976
FIG. 30	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 7.98, ELEVON = -40)	DLTALF,GRID,ALPHA	A	977-988
FIG. 31	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 0, MACH = 7.98, AILERON = 15)	DLTALF,GRID,ALPHA	A	989-1000
FIG. 32	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, ELEVON = 0)	DLT-X,DLTALF,GRID, DLTBTA,BETA,ALPHA	A	1001-1108
FIG. 33	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, ELEVON = 15)	DLT-X,DLTALF,GRID BETA, ALPHA	A	1109-1136
FIG. 34	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, ELEVON = -20)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	1137-1164
FIG. 35	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, ELEVON = -40)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	1165-1184
FIG. 36	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 5.93, AILERON = 15)	DLT-X,DLTALF,GRID, BETA, ALPHA	A	1185-1212

INDEX OF DATA FIGURES (Continued)

FIGURE	TITLE	CONDITIONS VARYING	PLOTTED COEFFICIENT SCHEDULE	PAGES
FIG. 37	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 7.98, ELEVON = 0)	DLT-X, DLTALF, DLTBTA, BETA, GRID, ALPHA, PO	A	1213-1290
FIG. 38	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 60, MACH = 7.98, ELV = 0, LWR PO)	DLT-X, DLTALF	A	1291-1294
FIG. 39	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = 200, MACH = 5.93, ELEVON = 0)	DLT-X, DLTALF, GRID BETA, ALPHA	A	1295-1348
FIG. 40	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y = -60, MACH = 5.93, ELEVON = 0)	DLT-X, DLTALF	A	1349-1354
FIG. 41	EXTERNAL TANK AERO CHARACTERISTICS (DELTA-X = 0, MACH = 5.93, ELEVON = 0)	DLT-Z, DLTBTA	B	1355-1360
FIG. 42	EXTERNAL TANK ALONE AERO CHARACTERISTICS AT MACH = 5.93	BETA	C	1361-1362
FIG. 43	EXTERNAL TANK ALONE AERO CHARACTERISTICS AT MACH 7.98	BETA	C	1363-1364
FIG. 44	EFFECT OF ELEVON ON ORBITER CHARACT. (MACH = 5.93, ALPHA = 0, BETA = 3)	ELEVON, DLTALF	A	1365-1370
FIG. 45	EFFECT OF ELEVON ON ORBITER CHARACT. (MACH = 7.98, ALPHA = 0, BETA = 0)	ELEVON, AILRON, DLTALF	A	1371-1376
FIG. 46	EFFECT OF ELEVON ON ORBITER CHARACT. (MACH = 7.98, ALPHA = -5, BETA = 0)	ELEVON, AILRON, DLTALF	A	1377-1382
FIG. 47	EFFECT OF ELEVON ON ORBITER CHARACT. (MACH = 5.93, DLT-Y = 60, DLTBTA = 3)	ELEVON, AILRON, DLTALF	A	1383-1388

INDEX OF DATA FIGURES (Concluded)

FIGURE	TITLE	CONDITIONS VARYING	PLOTTED COEFFICIENT SCHEDULE	PAGES
FIG. 48	EFFECT OF ELEVON ON ET CHARACT. (MACH = 5.93, ALPHA = 0, BETA = 3)	ELEVON, DLTALF	A	1389-1394
FIG. 49	EFFECT OF ELEVON ON ET CHARACT. (MACH = 7.98, ALPHA = 0, BETA = 0)	ELEVON, AILRON, DLTALF	A	1395-1400
FIG. 50	EFFECT OF ELEVON ON ET CHARACT. (MACH = 7.98, ALPHA = -5, BETA = 0)	ELEVON, AILRON, DLTALF	A	1401-1406
FIG. 51	EFFECT OF ELEVON ON ET CHARACT. (MACH = 5.93, DLT-Y = 60, DLTBTA = 3)	ELEVON, AILRON, DLTALF	A	1407-1412

PLOTTED COEFFICIENT SCHEDULE:

- (A) CN, CLM, CA, CY, CYN, CBL versus DLT-Z
- (B) CN, CLM, CA, CY, CYN, CBL versus DLT-Y
- (C) CN, CLM, CA, CY, CYN, CBL versus ALPHA

INTRODUCTION

An external tank separation test, IA17A, was conducted at Mach numbers of 6 and 8. The test was conducted during the period from March 6, 1974 through March 15, 1974. Data were obtained to define the aerodynamic interference between the two bodies over a grid of five variables (α , β , x , y , z) for various initial conditions of the combined vehicles. Six component aerodynamic characteristics were obtained for both bodies. The effects of the interference on elevon effectiveness (elevator and aileron) were also investigated. All objectives of the test were met.

This report for IA17A consists of three volumes. Two volumes consist of data figures while the third has the tabulated source data. Volume one contains Figure 4 through Figure 22 of the data figures and volume two has Figure 23 through Figure 51.

NOMENCLATURE General

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
a		speed of sound; m/sec, ft/sec
C _p	CP	pressure coefficient; $(P_1 - p_\infty)/q$
M	MACH	Mach number; V/a
P		pressure; N/m ² , psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$, N/m ² , psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
ψ	PSI	angle of yaw, degrees
ϕ	PHI	angle of roll, degrees
ρ		mass density; kg/m ³ , slugs/ft ³

Reference & C.G. Definitions

Ab		base area; m ² , ft ²
b	BREF	wing span or reference span; m, ft
c.g.		center of gravity
$\frac{l}{c}$ _{REF}	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m ² , ft ²
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis

SUBSCRIPTS

b	base
l	local
s	static conditions
t	total conditions
∞	free stream

NOMENCLATURE (Continued)

Body-Axis System

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
C_N	CN	normal-force coefficient; $\frac{\text{normal force}}{qS}$
C_A	CA	axial-force coefficient; $\frac{\text{axial force}}{qS}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_{A_b}	CAB	base-force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
C_{A_f}	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS l_{REF}}$
C_n	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
C_l	CEL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$

Stability-Axis System

C_L	CL	lift coefficient; $\frac{\text{lift}}{qS}$
C_D	CD	drag coefficient; $\frac{\text{drag}}{qS}$
C_{D_b}	CDB	base-drag coefficient; $\frac{\text{base drag}}{qS}$
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS l_{REF}}$
C_n	CLN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
C_l	CSL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$
L/D	L/D	lift-to-drag ratio; C_L/C_D
L/D _f	L/DF	lift to forebody drag ratio; C_L/C_{D_f}

NOMENCLATURE (Continued)
Additions to Standard Nomenclature

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Description</u>
$C_{p_{B1}}$		station no. 1 Orbiter base pressure coefficient, left side
$C_{p_{B2}}$		station no. 2 Orbiter base pressure coefficient, right side
$C_{p_{BC}}$		balance cavity pressure coefficient
ET		external tank
P_o	PO	freestream static pressure, psia
MRC		moment reference center
RTLS		return to launch site
V_∞		freestream velocity, fps
x_{cp}/l	XCP/L	longitudinal center of pressure, fraction of body length
x_o		Orbiter longitudinal station, in
x_T		external tank longitudinal station, in
y_o		Orbiter lateral station, in
y_T		external tank lateral station, in
z_o		Orbiter vertical station, in
z_T		external tank vertical station, in.
α_o		Orbiter angle of attack, deg
α_T		external tank angle of attack, deg

NOMENCLATURE (Concluded)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
β_o		Orbiter angle of sideslip, deg
β_T		external tank angle of sideslip, deg
$\Delta\alpha$	DLTALF	incremental angle of attack between Orbiter and external tank, deg
$\Delta\beta$	DLTBTA	incremental angle of sideslip between Orbiter and external tank, deg
ΔX	DLT-X	horizontal distance between external tank nose mated position and instantaneous position during separation, in.
ΔY	DLT-Y	lateral distance between external tank nose mated position and instantaneous position during separation, in
ΔZ	DLT-Z	vertical distance between external tank nose mated position and instantaneous position during separation, in
δ_e	ELEVON	elevon deflection angle, deg
δ_a	AILRON	aileron deflection angle, deg
GRID	GRID	matrix of linear and angular displacements used by the Captive Trajectory System computer to position the model at the required separation distances and angles

REMARKS

During the course of test preparation and running, various events occurred having a possible effect on the test results. These items are noted below.

- 1) AEDC was unable to satisfactorily tube for ET base pressure measurement due to the lack of provisions for these measurements in the CTS.
- 2) A leak was discovered to exist in the reference pressure tubing for the transducer measuring the ET chamber pressure. This affects all ET chamber pressure data after group 110.
- 3) During the running of group 455 the Orbiter balance (-050) was damaged due to a CTS failure. All subsequent data were obtained using a similar but different balance (-048). Since no comparison runs were made between the two balances, the affect on the data cannot be determined.

CONFIGURATIONS INVESTIGATED

Model 52-0 is an 0.010-scale representation of the Space Shuttle Configuration 3 Orbiter, built to the lines depicted in Rockwell Dwg. VL70-000139B. It is of all steel construction to withstand the environment of hypersonic tunnels. Adjustable control surfaces are provided by means of interchangeable brackets.

For this test the Orbiter model was mounted on the primary support system by means of the AEDC/VKF 4.00-Y-36-050 balance and 4.06 -Z-21-047 sting. (After data group 454 the -050 balance was replaced with the -048 balance when the -050 balance was damaged). The primary support system was modified to reduce blockage, resulting in manual, rather than remote changes of angle of attack and sideslip.

The balances were water cooled. Since the flexible tubing used to carry the cooling water to the cooling jacket was larger than anticipated the aft end of the Orbiter model was milled out for clearance, including the main propulsion engines.

The 52-T model is an 0.010-scale representation of the Vehicle 5 External Tank with protrusions and attach fittings as shown on Rockwell Dwg. VL78-000062. The tank model is also of all steel construction. It was mounted on the Captive Trajectory System by means of the AEDC/VKF 4.00-Y-36-049 balance and the Rockwell built VY 109575 sting. The following configuration notation was used:

$$O_1 = B_{19} C_7 E_{23} F_5 M_4 N_8 N_{24} R_5 V_7 W_{107}$$

$$ET_1 = T_{20} AT_{16} AT_{17} AT_{18} AT_{20} PT_9 PT_{10} PT_{11} PT_{12} FL_3 FL_4$$

TEST FACILITY DESCRIPTION

The Arnold Engineering Development Center (AEDC) is an Air Force Facility located in Tullahoma, Tennessee. Tunnel B is a continuous, closed circuit, variable density wind tunnel with an axisymmetric contoured nozzle and a 50-inch diameter test section. The tunnel can be operated at a nominal Mach number of 6 or 8 at stagnation pressures from 20 to 300 and 50 to 900 psia, respectively, and at a stagnation temperature of up to 1350°R. The model may be injected into the tunnel for a test run and then retracted for model cooling or model changes without interrupting the tunnel flow.

TEST PROCEDURE

The test was conducted to obtain data for use in a separation trajectory computer program. The test program was, therefore, designed to produce data for a grid of linear and angular displacements of the ET relative to the Orbiter, for various initial conditions of the combined vehicles. In general ΔZ (vertical distance of the ET nose from its mated position) was the basic variable, a basic group consisting of a series of ΔZ values at a single value combination of the other variables.

The initial relative positions of the Orbiter and external tank were established prior to testing by physical measurements. The linear and angular movement of the ET on the CTS was controlled by the CTS computer which compensated for balance and sting deflections.

DATA REDUCTION

Data were reduced about body and stability axes systems using the following reference dimensions:

Orbiter data:

reference area	2690.0 ft. ²
reference M.A.C.	1290.3 in.
reference span	1290.3 in.
moment reference point	
	$X_O = 1089.6 \text{ in.}$
	$Y_O = 0.0 \text{ in.}$
	$Z_O = 375.0 \text{ in.}$

Tank data:

reference area	2690.0 ft. ²
reference M.A.C.	1290.3 in.
reference span	1290.3 in.
moment reference point	
	$X_T = 1360.1 \text{ in.}$
	$Y_T = 0.0 \text{ in.}$
	$Z_T = 416.4 \text{ in.}$

MRP locations are also shown in figures 2a and b. Orbiter-tank separation distances are as defined in figure 1b.

TABLE I.

TEST : JA17A			DATE : 3/15/74
TEST CONDITIONS			
MACH NUMBER	REYNOLDS NUMBER (per ft)	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
5.93	1.973×10^6	1.575	335
7.98	1.921	1.947	805
7.98	1.753	1.708	812
7.98	1.669	1.626	812
7.98	1.431	1.392	832

Orbiter (Groups 1-454), Balance 4.00-Y-36-050

<u>Balance Component</u>	<u>Design Load</u>	<u>Range of Static Loads</u>	<u>Measurement Uncertainty</u>
Normal force, lb	200	± 50	± 0.5
Side force, lb	100	± 25	± 0.1
Axial force, lb	50	10	± 0.1
Pitching moment, in.-lb	680	± 100	± 0.8
Yawing moment, in.-lb	300	± 50	± 0.3
Rolling moment, in.-lb	100	± 10	± 0.05

Orbiter (Groups 455-997), Balance No. 4.00-Y-36-048

<u>Balance Component</u>	<u>Design Load</u>	<u>Range of Static Loads</u>	<u>Measurement Uncertainty</u>
Normal force, lb	300	± 50	± 0.3
Side force, lb	100	± 25	± 0.15
Axial force, lb	50	10	± 0.1
Pitching moment, in.-lb	1020	± 100	± 0.6
Yawing moment, in.-lb	340	± 50	± 0.4
Rolling moment, in.-lb	100	± 10	± 0.04

External Tank, Balance No. 4.00-Y-36-049

<u>Balance Component</u>	<u>Design Load</u>	<u>Range of Static Loads</u>	<u>Measurement Uncertainty</u>
Normal force, lb	200	± 50	± 0.3
Side force, lb	200	± 25	± 0.2
Axial force, lb	100	10	± 0.1
Pitching moment, in.-lb	680	± 100	± 0.5
Yawing moment, in.-lb	680	± 50	± 0.3
Rolling moment, in.-lb	100	± 20	± 0.07

Loads and Uncertainties with respect to Balance Center

TABLE II.

TEST: AEDC VA422 (IA17A)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE: 3/15/74

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale			
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	δ_e			GRID		0	200	400	
*RTR001	O ₁ + ET ₁	0	A	0	0	0	0	5.93	0	0				1		56	57	58
02			B			-5										62	63	
03			C			-10										64	65	66
04			D			-15										70	71	72
05			E			-20							↓			73	74	75
06			K			-20							26			380		
07			J		↓	-20							26			381	372	373
08			A		3	0							3			149	112	
09			G			-5										115	116	
10			H			-10										117	118	119
11			I			-15										123	124	125
12			A			0										111		
13			J	↓	↓	0							↓			130	126	127
14			A	5	0	0							5			199	200	201
15			G			-5										205	206	
16			H			-10										207	208	209
17			I		↓	-15										213	214	215
↓ 19	↓	↓	J	↓	3	-20	↓	↓	↓	↓			↓			220	216	217
TEST RUN NUMBERS																		
C M CA CLM CY CYN CRL XCP/L CPB1 CPB2 CPBG IDLT-X IDLT-Z																		
COEFFICIENTS																		
IDVAR (1) IDVAR (2) NDV																		
α OR β																		
SCHEDULES																		
A(ΔZ) = 20, 100, 200, 300, 400, 500, 600																		
B(ΔZ) = 200, 300, 400, 500, 600, 800																		
C(ΔZ) = 400, 500, 600, 800																		
D(ΔZ) = 500, 600, 800																		

*FOR ALL CONFIGURATIONS: RTRXXX REFERS TO O₁ BALANCE DATA
 ATRXXX REFERS TO ET₁ BALANCE DATA

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74					
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX, in. full scale			
		ΔY	ΔZ	α ₀	β ₀	Δα	Δβ	M	δ ₀	δ _e			GRID		0	200	400	
RTR020	O ₁ +ET ₁	0	A	5	3	0	0	593	0	0			4		161	162		
21			G			-5								165	166			
22			H			-10								167	168	169		
23			I			-15								173	174	175		
25			J	Y	Y	-20						↓		180	176	177		
26			A	-5	0	0						6		239	240	241		
27			L			-5								245	246			
28			H			-10								247	248	249		
29			I			-15								253	254	255		
31			J		↓	-20						↓		260	256	257		
32			A		3	0						7		279	280			
33			L			-5								283	284			
34			H			-10								285	286	287		
35			I			-15								291	292	293		
37			J	↓		-20						↓		298	294	295		
38			M	-10		0						8		318	319			
39			L			-5								322	323			
↓ 40	↓	↓	N	↓	↓	-10	↓	↓	↓	↓		↓		324	325	326		
		7	13	19	25	31	37	43	49	55	61	67	73	76				
		COEFFICIENTS										IDVAR (1)		IDVAR (2)	NDV			
α OR β		E(ΔZ) = 800, 1000										H(ΔZ) = 400, 500, 600, 750, 800						
SCHEDULES		G(ΔZ) = 200, 300, 400, 500, 600, 750, 800										I(ΔZ) = 500, 600, 750, 800						

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74						
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale				
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	δ_e			GRID		0	200	400		
RTR041	O ₁ +ET ₁	0	P	-10	3	-15	0	5.93	0	0				8		330	331	332	
42		T	M		0	0								9		344	345	346	
43			L			-5										350	351		
44			N			-10										352	353	354	
45			P			-15										358	359	360	
46			M			0										387		388	
47			N			-10										389		390	
48			A	-5		0										396		397	
49			H			-10										398		399	
51			J			-20										406		400	
52			A	5		0										409		410	
53			H			-10										411		412	
55			J			-20										419		413	
56			A	0	0	0										422		423	
57			H			-10										424		425	
59			J			-20										432		426	
60			A		3	0										435			
61			H		3	-10										436			
		7	13	19	25	31	37	43	49	55	61	67	73	76					
α OR β		COEFFICIENTS										IDVAR (1)		IDVAR (2)	NDV				
SCHEDULES		$J(\Delta Z) = 750, 800, 900, 1000$ $K(\Delta Z) = 800, 900, 1000$										$L(\Delta Z) = 200, 300, 400, 500, 600$ $M(\Delta Z) = 30, 100, 200, 300, 400, 500$							

TEST RUN NUMBERS

TABLE II, (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74					
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale			
		LY	AZ	d_0	β_0	$\Delta\alpha$	$\Delta\beta$	M	δ_a	δ_e			GRID		0	200	400	
RTRO62	O, +ET,	O	K	O	3	-20	0	593	0	-20			14		437			
63		H	T			0				-40					450			
64		H				-10									451			
65		K			✓	-20							✓		452			
66		A			0	0							13		595	596		
67		H				-10									597	598		
69		J	✓			-20							✓		600	599		
70		A	5			0							12		608	609		
71		H				-10									610	611		
73		J	✓			-20							✓		613	612		
74		A	-5			0							11		621	622		
75		H				-10									623	624		
77		J	✓			-20							✓		626	625		
78		M	-10			0							10		634	635		
79		N	-10	✓		-10			✓	✓			10		636	637		
80		A	0	3	0				+15	+15L -15R			14		462			
81		H				-10									463			
✓ 82	✓	✓ K	✓	✓	✓	-20	✓	✓	✓	✓			✓		464			
		7	13	19	25	31	37	43	49	55	61	67	73	76				
α OR β																		
SCHEDULES																		
		COEFFICIENTS																
		N(ΔZ) = 400, 500, 600, 700, 800																
		P(ΔZ) = 500, 600, 700, 800																
		R(ΔZ) = 200, 300, 400, 500, 600, 700, 800																
		T(ΔZ) = 200, 300, 400, 500																
		IDVAR (1) IDVAR (2) NO																

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74					
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale			
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δa	δe			GRID		0	200	400	
RTRO83	<u>O₁ + ET₁</u>	D	A	0	0	0	0	5.93	+15	+15L -15R			13		469		470	
084		T	H	T	T	-10	T	T	T	T			T		471		472	
086			J	V		-20							V		479		473	
087			A	5		0							12		482		483	
088			H	T		-10							T		484		485	
090			J	V		-20							V		492		486	
091			A	-5		0							11		495		496	
092			H	T		-10							T		497		498	
094			J	V		-20							V		505		499	
095			M	-10		0							10		521		522	
096			N	-10	V	-10			V	V			10		523		524	
097			A	0	3	0			C	+15			14		581			
098			H	T	T	-10			T	T			T		582			
099			K		V	-20			T	T			V		583			
100			A		0	0							13		568		569	
101			H		T	-10							T		570		571	
103			J	V		-20							V		578		572	
104			A	5	V	0	V	V	V	V			12		555		556	
		13	19	25	31	37	43	49	55	61	67	73	79					
		COEFFICIENTS										IDVAR (1)		IDVAR (2)		NDV		
α OR β		<u>u(ΔZ) = 400, 500, 600</u>																
SCHEDULES		<u>A</u>																

TEST RUN NUMBERS

TABLE II. (Continued)

TEST: AEDC VA422 (TA17A)				DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 3/15/74					
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale				
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	δ_e			GRID		0	200	400		
RTR105	O: +ET ₁	0	H	5	0	-10	0	5.93	0	+15'				12		557		558	
107		T	J	5	T	-20	T	T	T	T				12		565		559	
108			A	-5	T	0	T	T	T	T				11		542		543	
109			H	T		-10	T	T	T	T				T		544		545	
111			J	T		-20	T	T	T	T				↓		552		546	
112			M	-10		0	T	T	T	T				10		533		534	
113			N	↓		-10	T	T	T	↓				10		535		536	
114			R	10		-5	T	T	T	0				23		643	644		
115			N	T		-10	T	T	T	T				T		645	646	647	
116			P			-15	T	T	T	T				T		651	652	653	
117			K		↓	-20	T	T	T	T				↓		654	655	656	
118			R		3	-5	T	T	T	T				27		673	674		
119			N		T	-10	T	T	T	T				T		675	676	677	
120			P			-15	T	T	T	T				T		681	682	683	
121			K	↓	↓	-20	T	↓	T	T				↓		684	685	686	
122			T	0	0	0		7.98	T	T				16		717	718		
123			L	T	T	-5	T	T	T	T				T		721	722		
↓ 124		↓	H	↓	↓	-10	↓	↓	↓	↓				↓		723	724	725	
1																			

TEST RUN NUMBERS

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74								
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale						
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δa	δe	P_0		GRID		0	200	400				
RTR125	0 ₁ +ET ₁	0	I	0	0	-15	0	7.98	0	0	-		16		729	730	731				
127		T	J			-20					-				736	732	733				
128			T			0					300				868	869					
129			L			-5									872	873					
130			H		↓	-10					↓		↓		874	875	876				
131			T		3	0					420		17		747	748					
132			L			-5									751	752					
133			H			-10									753	754	755				
134			I			-15									759	760	761				
136			J	↓		-20							↓		766	762	763				
137			T	5		0							25		807	808					
138			L			-5									811	812					
139			U			-10									813	814	815				
140			I			-15									818	820	821				
142			J	↓		-20							↓		826	822	823				
143			T	-5		0							18		838	839					
144			L			-5									842	843					
✓ 145	↓	✓	U	↓	↓	-10	↓	✓	✓	✓	✓	✓	↓		844	845	846				
		7	13	19	25	31	37	43	49	55	61	67	73	76							
COEFFICIENTS																			IDVAR (1)	IDVAR (2)	NDV
α OR β																					
SCHEDULES																					

TEST RUN NUMBERS

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74						
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale				
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	ϵ_a	ϵ_e	P_0	GRID	0		200	400			
RTR 146	$O_1 + ET_1$	0	I	-5	3	-15	0	7.98	0	0	420	18		850	851	852			
148		T	J	-5	3	-20			0	0	370	18		857	853	854			
149			T	0	0	0			+15	+15L -15R	300	21		887					
150			H			-10								888					
151			K	✓		-20						✓		889					
152			T	-5		0						20		891					
153			U			-10								892					
154			K	✓		-20			✓	✓		✓		893					
155			T	0		0			0	-20		21		903					
156			H			-10								904					
157			K	✓		-20						✓		905					
158			T	-5		0						20		899					
159			U			-10								900					
160			K	✓		-20				✓		✓		901					
161			T	0		0				-40		21		914					
162			H			-10								915					
163			K	✓		-20						✓		916					
✓ 164	✓	✓	T	-5	✓	0	✓	✓	✓	✓	✓	20		918					
		7	13	19	25	31	37	43	49	55	61	67	73	76					
COEFFICIENTS																	IDVAR (1)	IDVAR (2)	NDV
α OR β																			
SCHEDULES																			

TEST RUN NUMBERS

TABLE II. (Continued)

TABLE 11. (Continued)												DATE: 3/15/74						
TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY																
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	Δx, in. full scale			
		ΔY	ΔZ	α ₀	β ₀	Δα	Δβ	M	δ ₀	δ _e	P ₀	GRID	0		200	400		
RTR165	0 ₁ +ET ₁	0	U	-5	0	-10	0	7.98	0	-40	300	20		919				
166		T	K	-5	0	-20						20		920				
167			M	-10	3	0						8		922	923			
168			L			-5								926	927			
169			N			-10								928	929	930		
170			P	↓	↓	-15								934	935	936		
171			T	-5	0	0								938	939			
172			L			-5								942	943			
173			U			-10								944	945	946		
174			T			-15								950	951	952		
176			J	↓		-20						↓		957	953	954		
177			T	5		0						24		968	969			
178			L			-5								972	973			
179			U			-10								974	975	976		
180			I			-15								980	981	982		
↓ 182	↓	↓	J	↓	↓	-20	↓	↓	↓	↓	↓	↓		987	983	984		
7 13 19 25 31 37 43 49 55 61 67 75 76																		
COEFFICIENTS IDVAR (1) IDVAR (2) IDCV																		
α OR β SCHEDULES																		

TEST RUN NUMBERS

TABLE II. (Continued)

TEST : AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE : 3/15/74						
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale				
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	δ_e			GRID		0	200	400		
RTR201	0,+ET ₁	60	A	0	0	0	0	5.93	0	0				1		61	60	59	
202			C			-10										69	68	67	
203			E			-20										78	77	76	
205			J			-20	✓									382	375	374	
206			A			0	3									91	92		
207			C			-10										85	86	87	
208			E			-20										79	80	81	
210			J		✓	-20	✓						✓			383	376	377	
211			A		3	0	0						3			114	113		
212			H			-10										122	121	120	
214			J			-20	✓									131	129	128	
215			A			0	3									156	157		
216			H			-10										150	151	152	
218			J	✓	✓	-20	✓						✓			136	132	133	
219			A	5	0	0	0						5			204	203	202	
220			H			-10										212	211	210	
222			J			-20	✓									221	219	218	
223			A	✓	✓	0	3	✓	✓	✓			✓			234	235		
		7	13	19	25	31	37	43	49	55	61	67	73	76					
		COEFFICIENTS											IDVAR (1) IDVAR (2) ICV						
α OR β																			
SCHEDULES																			

TABLE II. (Continued)

TEST : AEDC VA 122 (IA17A)											DATA SET/RUN NUMBER COLLATION SUMMARY											DATE : 3/15/74										
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX, in. full scale																	
		ΔY	ΔZ	α ₀	β ₀	Δα	Δβ	M	δ _a	δ _e			GRID		0	200	400															
RTR224	O, +ET,	60	H	5	0	-10	3	5.93	0	0				5		228	229	230														
226			J		0	-20	3							5		226	222	223														
227			A		3	0	0							4		164	163															
228			H			-10										172	171	170														
230			J			-20	↓									181	179	178														
231			A			0	3									194	195															
232			H			-10										188	189	191														
234			J	↓	↓	-20	↓						↓			186	182	183														
235			A	-5	0	0	0						6			244	243	242														
236			H			-10										252	251	250														
238			J			-20	↓									261	259	258														
239			A			0	3									274	275															
240			H			-10										268	269	270														
242			J		↓	-20	↓						↓			266	262	263														
243			A		3	0	0						7			282	281															
244			H			-10										290	289	288														
246			J			-20	↓									299	297	296														
↓ 247	↓	↓	A	↓	↓	0	3	↓	↓	↓			↓			312	313															
		7	13	19	25	31	37	43	49	55	61	67	73	76																		
											COEFFICIENTS											IDVAR (1) IDVAR (2) IDCV										
α OR β SCHEDULES																																

TEST RUN NUMBERS

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74							
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	Δx , in. full scale					
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	δ_e			GRID		0	200	400			
RTR248	$O_1 + ET_1$	60	H	-5	3	-10	3	5.93	0	0			7		306	309	308			
250			J	-5		-20	3						7		304	300	301			
251			M	-10		0	0						8		321	320				
252			N			-10	0								329	328	327			
253			M			0	3								239	340				
254			N		\downarrow	-10	3						\downarrow		333	334	335			
255			M		0	0	0						9		349	348	347			
256			N			-10	0								357	356	355			
257			M			0	3								367	368				
258			N			-10				\downarrow			\downarrow		361	362	363			
259			M			0				-20			10		393		394			
260			N	\downarrow		-10							10		391		392			
261			A	-5		2							11		404		405			
262			H			-10									402		403			
264			J	\downarrow		-10							\downarrow		401		401			
265			A	5		0							15		411		418			
266			H			-10									415		416			
\downarrow 268	\downarrow	\downarrow	J	\downarrow	\downarrow	-20	\downarrow	\downarrow	\downarrow	\downarrow			\downarrow		420		414			
		7	13	19	25	31	37	43	49	55	61	67	73	76						
COEFFICIENTS																		IDVAR (1)	IDVAR (2)	NDV
α OR β																				
SCHEDULES																				

TEST RUN NUMBERS

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74						
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale				
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	ϵ_e			GRID		0	200	400		
RTR269	O, +ET,	60	A	0	0	0	3	5.93	0	-20				13		430		431	
270			H			-10										428		429	
272			J		✓	-20										433		427	
273			A		3	0								14		440			
274			H			-10										439			
275			K			-20						✓				438			
277			H			-10						-40				454			
278			K		✓	-20								✓		453			
279			A		0	0								13		605		606	
280			H			-10										603		604	
282			J	✓		-20								✓		607		605	
283			A	5		0								12		618		610	
284			H			-10										616		617	
286			J	✓		-20								✓		614		615	
287			A	-5		0								11		631		632	
288			H			-10										629		630	
290			J	✓		-20								✓		627		628	
✓ 291	✓	✓	M	-10	✓	0	✓	✓	✓	✓	✓			10		640		641	

7 13 19 25 31 37 43 49 55 61 67 75 76

COEFFICIENTS
IDVAR (1) IDVAR (2) NDV

α OR β _____

SCHEDULES _____

TABLE II. (Continued)

TEST: AEDC YA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74					
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale			
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	δ_e			GRID		0	200	400	
RTR292	0, +ET,	60	N	-10	0	-10	3	5.93	0	-40			10	638		639		
293			A	0	3	0			+15	+15L -15R			14	467				
294			H			-10								466				
295			K			-20								465				
296			A		0	0							13	477		478		
297			H			-10								475		476		
299			J			-20								480		474		
300			A	5		0							12	490		491		
301			H			-10								488		489		
303			J			-20								493		487		
304			A	-5		0							11	503		504		
305			H			-10								501		502		
307			J			-20								506		500		
308			M	-10		0							10	519		520		
309			N	-10		-10							10	517		518		
310			A	0	3	0			0	15			14	586				
311			H			-10								585				
312			K			-20								584				
		7	13	19	25	31	37	43	49	55	61	67	73	79	85	91		
COEFFICIENTS																		
SCHEDULES																		

TABLE II. (Continued)

TABLE 11. (Continued)												DATE: 3/15/74						
TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY																
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale			
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	δ_e	P_0	GRID	0		200	400		
RTK313	01+ET,	60	A	0	0	0	3	5.93	0	15	—	13	576		577			
314			H			-10							574		575			
316			J	↓		-20						↓	579		573			
317			A	5		0						12	563		564			
318			H			-10							561		562			
320			J	↓		-20						↓	566		560			
321			A	-5		0						11	550		551			
322			H			-10							548		549			
324			J	↓		-20						↓	553		547			
325			M	-10		0						10	539		540			
326			N	↓		-10	↓			↓		10	537		538			
327			N	10		-10	0			0		23	650	649	648			
328			K			-20	0						659	658	657			
329			N			-10	3						666	667	668			
330			K		↓	-20	3				↓	↓	660	661	602			
331			N		3	-10	0				94	27	680	679	678			
332			K			-20	0						689	688	687			
↓ 333	↓	↓	N	↓	↓	-10	3	↓	↓	↓	↓	↓	696	697	698			
		13	19	25	31	37	43	49	55	61	67	75	76					
COEFFICIENTS												IDVAR (1)		IDVAR (2)		IDCV		
α OR β																		
SCHEDULES																		

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74							
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale					
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	δ_e	P_0		GRID		0	200	400			
RTR334	O ₁ +ET ₁	60	K	10	3	-20	3	5.93	0	0	94		27		690	691	692			
335			T	0	0	0	0	7.98			420		16		720	719				
336			H			-10									728	727	726			
338			J			-20	↓								737	735	734			
339			T			0	3								744	745				
340			H			-10									741	742	743			
342			J			-20	↓					↓			740	738	739			
343			T			0	0				300				871	870				
344			H		↓	-10					300		↓		879	878	877			
345			T		3	0					420		17		750	749				
346			H			-10									758	757	756			
348			J			-20	↓								767	765	764			
349			T			0	3								774	775				
350			H			-10									771	772	773			
352			J	↓		-20	↓						↓		770	768	769			
353			T	5		0	0						25		810	809				
354			U			-10									818	817	816			
↓ 356	↓	↓	J	↓	↓	-20	↓	↓	↓	↓	↓	↓	↓		821	825	821			
		13	19	25	31	37	43	49	55	61	67	73	76							
COEFFICIENTS																		IDVAR (1)	IDVAR (2)	IDVAR (3)
α OR β																				
SCHEDULES																				

TABLE II. (Continued)

TEST : AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE : 3/15/74						
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale				
		ΔY	ΔZ	α_0	β_0	$\Delta \alpha$	$\Delta \beta$	M	δ_a	δ_e	P_0		GRID		0	200	400		
RTR357	$O_1 + ET_1$	60	T	5	3	0	3	7.98	0	0	420		25		834	835			
358			U			-10									831	832	833		
360			J	↓		-20	↓						↓		830	828	829		
361			T	-5		0	0						18		841	840			
362			U			-10					↓				849	848	847		
364			J			-20	↓				370				858	856	855		
365			T			0	3				300				865	866			
366			U			-10					300				862	863	864		
368			J			-20					350					859			
369			J	↓		-20	↓				300	↓			861		860		
370			M	-10		0	0					8			925	924			
371			N	-10	↓	-10						8			933	932	931		
372			T	-5	0	0						19			941	940			
373			J			-10									949	948	947		
375			J			-20	↓								958	956	955		
376			T			0	3								965	966			
377			U			-10									962	963	964		
↓ 379	↓	↓	J	↓	↓	-20	↓	↓	↓	↓	↓	↓	↓		961	959	960		
		13	19	25	31	37	43	49	55	61	67	75	76						
		COEFFICIENTS												IDVAR (1)		IDVAR (2)		IDV	
α OR β																			
SCHEDULES																			

TEST RUN NUMBERS

TABLE II. (Continued)

TEST : AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE : 3/15/74							
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX , in. full scale					
		L1	L2	α_0	β_0	$\Delta\alpha$	$\Delta\beta$	M	δ_0	δ_e	P_0	GRID	0		200	400				
RTR380	O ₁ +ET ₁	60	T	5	0	0	0	7.98	0	0	300		24		971	970				
381			U			-10									979	978	977			
383			J			-20	↓								988	986	985			
384			T			0	3								995	996				
385			U			-10									992	993	994			
387		↓	J	↓		-20		↓			↓		↓		991	989	990			
401		200	A	0		0		593			—		1		94	93				
402			C			-10									90	89	88			
403			E			-20							↓		84	83	82			
405			J		↓	-20							26		384	379	378			
406			A		3	0							3		159	158				
407			H			-10									155	154	153			
409			J	↓	↓	-20							↓		137	135	134			
410			A	5	0	0							5		237	236				
411			H			-10									233	232	231			
413			J		↓	-20							↓		227	225	224			
414			A		3	0							4		197	196				
↓ 415	↓	↓	H	↓	3	-10	↓	↓	↓	↓	↓		4		193	192	191			
		7	13	19	25	31	37	43	49	55	61	67	73	76						
COEFFICIENTS																		IDVAR (1)	IDVAR (2)	IDCV
α OR β																				
SCHEDULES																				

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE: 3/15/74

[illegible]

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 3/15/74							
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX, in. full scale					
		ΔY	ΔZ	α ₀	β ₀	Δα	Δβ	M	δ _a	δ _e	P ₀	GRID	2000*							
RTR501	0 ₁	0	1000	0	0	0	0	5.93	0	0	—	1			101					
502				0	3	0	-3					3			160					
503				5	0	-5	0					5			238					
504				5	3	-5	-3					4			198					
505				-5	0	5	0					6			218					
506				-5	3	5	-3					7			316					
507				-10	3	10	-3					8			343					
508					0		0			↓		9			371					
509				↓		↓				-20		10			395					
510				-5		5						11			408					
511				5		-5						12			421					
512				0	↓	0	↓					13			434					
513					3		-3			↓	↓	14			441					
514				↓	0	↓	0			-40	94	13			607					
515				5		-5						12			620					
516				-5		5						11			633					
517				-10	↓	10	↓			↓	↓	10			642					
✓518	↓	↓	↓	0	3	0	-3	↓	↓	+15L -15R	—	14			468					
		7	13	19	25	31	37	43	49	55	61	67	73	79						
COEFFICIENTS																		IDVAR (1)	IDVAR (2)	IDV
α OR β																				
SCHEDULES																				

* $\Delta \alpha$ and $\Delta \beta$ are not meaningful for this isolated orbiter data and a max value of zero was used in these datasets.

TABLE II. (Continued)

TEST: AEDC VA422 (IA17A)				DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 3/15/74			
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	ΔX, in. full scale		
		ΔY	ΔZ	α ₀	β ₀	Δα	Δβ	M	δ _a	δ _e	P ₀	GRID	2000*				
RTR519	0 ₁	0	1000*	0	0	0	0	5.93	15	+15L -15R	—	13			481		
520				5		-5						12			494		
521				-5		5						11			507		
522				-10	↓	10	↓		↓	↓	↓	10			525		
523				0	3	0	-3		0	15	94	14			587		
524				0	0	0	0					13			580		
525				5		-5						12			567		
526				-5		5						11			554		
527				-10		10				↓		10			541		
528				10	↓	-10	↓			0		23			672		
529				10	3	-10	-3	↓			↓	24			702		
530				0	0	0	0	7.98			420	16			746		
531				0	3	0	-3				300	17			776		
532				5		-5					420	25			836		
533				-5	↓	5	↓		↓	↓	300	18			867		
534				0	0	0	0		15	+15L -15R		21			890		
535				-5		5			↓	↓		20			894		
↓ 536	↓	↓	↓	0	↓	0	↓	↓	0	-20	↓	21			906		

7131925313743495561677376

COEFFICIENTSIDVAR (1)IDVAR (2)NDV

α or β

SCHEDULES

* ΔX and ΔZ are not meaningful for this isolated orbiter data and a dummy value of zero was used in these datasets.

TABLE II. (Continued)

[illegible]

* ΔX and ΔZ are not meaningful for this isolated orbiter data and a dummy value of zero was used in these datasets.

TABLE II. (Continued)

TEST : AEDC VA422 (IAI7A)		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE : 3/15/74				
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		CONTROL DEFLECTION				NO. OF RUNS	ΔT							
		α	β	M	GRID					-25	-20	-15	-10	-5	0	5
RTR551	ET ₁		Q	5.93	15				449	443	444	445	446	447	448	
552			0						455	456	457	458	459	460	461	
553			T						526	527	528	529	530	531	532	
554			↓						588	589	590	591	592	593	594	
555			Q	↓	↓				703	704	705	706	707	708	709	
556			0	7.98	30				710	711	712	713	714	715	716	
557			Q	T	15				880	881	882	883	884	885	886	
558			T	↓	T				907	908	909	910	911	912	913	
↓ 559	↓		↓	5.93	↓				442							

1 7 13 19 25 31 37 43 49 55 61 67 75 76

α OR β SCHEDULES

COEFFICIENTS

$Q(\beta_{ET}) = 0, 3, 6$

ALPHA BETA

IDVAR (1) IDVAR (2) NDV

TABLE II. (Continued)

[illegible]

TABLE II. (Concluded)

[illegible]

TABLE III. - MODEL DIMENSIONAL DATA

MODEL COMPONENT: ATTACH STRUCTURE - AT₁₆

GENERAL DESCRIPTION: Forward orbiter/FT Attach Structure (2 member structure).

MODEL SCALE: 0.010

MODEL DRAWING: SS-A00117

DRAWING NO.: VL78-000062B, SK-H-4011

DIMENSIONS:	MEMBER		FULL SCALE	MODEL SCALE
	#1	X _O	394.38	3.944
		Y _O	0.0	0.0
		Z _O	LWR ML	LWR ML
		X _T	1131.0	11.310
		Y _T	46.8	0.468
		Z _T	561.298	5.613
	#2	X _O	394.38	3.944
		Y _O	0.0	0.0
		Z _O	LWR ML	LWR ML
		X _T	1131.0	11.310
		Y _T	- 46.8	- 0.468
		Z _T	561.298	5.613
Diameter of Members:			5.70	0.057

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ATTACH STRUCTURE - AT₁₇

GENERAL DESCRIPTION: Left rear orbiter/ET attach structure (2 member structure)

MODEL SCALE: 0.010

MODEL DRAWING: SS-A00117

DRAWING NO.: VL78-000062B, SK-H-4013

DIMENSIONS:	<u>MEMBER</u>		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
	#1	X _O	1317.00	13.170
		Y _O	- 96.5	- 0.965
		Z _O	267.5	2.675
		X _T	2058.00	20.580
		Y _T	- 125.827	- 1.258
		Z _T	515.00	5.150
	#2	X _O	1317.00	13.170
		Y _O	- 96.5	- 0.965
		Z _O	267.5	2.675
		X _T	2058.00	20.580
		Y _T	- 125.827	- 1.258
		Z _T	515.5	5.155
Diameter of Members:	#1		11.5	0.115
	#2		15.5	0.155

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ATTACH STRUCTURE - AT₁₈

GENERAL DESCRIPTION: Right rear orbiter/ET attach structure (3 member structure)

MODEL SCALE: 0.010

MODEL DRAWING: SS-A00117

DIMENSIONS:

	<u>MEMBER</u>		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
	#1	X _O	1317.00	13.170
		Y _O	96.5	0.965
		Z _O	267.5	2.675
		X _T	1872.0	18.720
		Y _T	125.827	1.258
		Z _T	515.5	5.155
	#2	X _O	1317.0	13.170
		Y _O	96.5	0.965
		Z _O	267.5	2.675
		X _T	2058.0	20.580
		Y _T	125.827	1.258
		Z _T	515.5	5.155
	#3	X _O	1317.0	13.170
		Y _O	54.40	0.544
		Z _O	19.30	0.193
		X _T	2058.0	20.580
		Y _T	2.5	0.025
		Z _T	567.6	5.676
Diameter of Members, In.:	#1		15.5	0.155
	#2		11.5	0.115
	#3		4.5	0.045

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ATTACH STRUCTURE - AT₂₀

GENERAL DESCRIPTION: Aft SRB/ET attach structure (3 member structure)

MODEL SCALE: 0.010

MODEL DRAWING: SS-A00117

DRAWING NO.: VL78-000062B, VL72-000140, VL72-000115

DIMENSIONS:	<u>MEMBER</u>		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
	#1	X _B	1317.00	13.170
		Y _B	± 57.0	± 0.570
		Z _B		
		Z _T	457.00	4.570
	#2	X _B	1317.00	13.170
		X _T	2058.00	20.580
	#3	X _B	1317.00	13.170
		Y _B	± 57.0	± 0.570
		X _T	2058.00	20.580
		Z _T	343.00	3.430
Diameter of Members, In.:			6.0	0.060

TABLE III. - MODEL DIMENSIONAL DATA -- Continued.

MODEL COMPONENT: BODY - B₁₉

GENERAL DESCRIPTION: Fuselage, Configuration 3, per Rockwell Lines

Drawing VL70-000139B

NOTE: Identical to B17 except forebody

MODEL SCALE: .010

DRAWING NUMBER: VL70-000139B

DIMENSIONS:

	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length - In.	<u>1290.3</u>	<u>12.903</u>
Max. Width - In.	<u>267.6</u>	<u>2.676</u>
Max. Depth - In.	<u>244.5</u>	<u>2.445</u>
Fineness Ratio	<u>4.82175</u>	<u>4.82175</u>
Area - Ft ²		
Max. Cross-Sectional	<u>386.67</u>	<u>0.03867</u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: CANOPY - C₇

GENERAL DESCRIPTION: Configuration 3 per Rockwell Lines VL70-000139

MODEL SCALE: 0.010

DRAWING NUMBER: VL70-000139

DIMENSIONS:

	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length ($X_0 = 433$ to $X_0 = 670$) in. FS	<u>237</u>	<u>2.370</u>
Max. Width	<u> </u>	<u> </u>
Max. Depth ($Z_0 =$ to $Z_0 = 501$) - In. FS	<u> </u>	<u> </u>
Fineness Ratio	<u> </u>	<u> </u>
Area		
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ELEVON - E₂₃

GENERAL DESCRIPTION: Configuration 3 per W₁₀₇ Rockwell Lines Drawing

VL70-000139B data for (1) of (2) sides

MODEL SCALE: 0.010

DRAWING NUMBER: VL70-000139B

DIMENSIONS:	FULL SCALE	MODEL SCALE
Area - ft ²	<u>205.52</u>	<u>0.02055</u>
Span (equivalent) - in.	<u>353.34</u>	<u>3.533</u>
Inb'd equivalent chord	<u>114.78</u>	<u>1.148</u>
Outb'd equivalent chord	<u>55.00</u>	<u>0.550</u>
Ratio movable surface chord/total surface chord		
At inb'd equiv. chord	<u>0.208</u>	<u>0.208</u>
At outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep-back angles, degrees		
Leading edge	<u>0.00</u>	<u>0.00</u>
Trailing Edge	<u>- 10.24</u>	<u>- 10.24</u>
Hingeline	<u>0.00</u>	<u>0.00</u>
Area Moment (Normal to Hingeline) - ft ³ (Product of Area Moment)	<u>1548.07</u>	<u>0.001548</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: BODY FLAP - F₅

GENERAL DESCRIPTION: Body flap for fuselage B₁₉

MODEL SCALE: 0.015

DRAWING NUMBER: VL70-000139

DIMENSIONS:

	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length - In.	<u>84.70</u>	<u>0.8470</u>
Max. Width - In.	<u>267.6</u>	<u>2.676</u>
Max. Depth - In.	<u> </u>	<u> </u>
Fineness Ratio	<u> </u>	<u> </u>
Area - ft ²	<u> </u>	<u> </u>
Max. cross-sectional	<u>142.5195</u>	<u>0.01425</u>
Wetted	<u> </u>	<u> </u>
Base	<u>38.0958</u>	<u>0.00380958</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: FEEDLINE - FL₃

GENERAL DESCRIPTION: LOX Feedline between ET and orbiter.

MODEL SCALE: 0.010

MODEL DRAWING: SS-A00117

DRAWING NO.: VL78-000062, VL72-000131

DIMENSIONS:		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Centerline at:	X _T	2017.50	20.175
	Y _T	70.00	0.700
	X _O	1330.50	13.305
	Y _O	70.00	0.700
Diameter:		18.80	0.188

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: FEEDLINE - FL₄

GENERAL DESCRIPTION: LH₂ feedline between ET and orbiter.

MODEL SCALE: 0.010

MODEL DRAWING NO.: SS-A00117

DRAWING NO.: VL78-000062, VL72-000131

DIMENSIONS:

		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Centerline at:	X _T	2017.50	20.175
	Y _T	- 70.00	- 0.700
	X _T	1330.50	13.305
	Y _T	- 70.00	- 0.700
Diameter		18.80	0.188

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: OMS Pod - M₄

GENERAL DESCRIPTION: Configuration 3 per Rockwell Lines VL70-000139

NOTE: M₄ identical to M₃ except intersection to fuselage.

MODEL SCALE: 0.010

DRAWING NUMBER: VL70-000139

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length - In.	<u>346.0</u>	<u>3.460</u>
Max. Width - In.	<u>108.0</u>	<u>1.080</u>
Max. Depth - In.	<u>113.0</u>	<u>1.130</u>
Fineness Ratio	<u> </u>	<u> </u>
Area - Ft ²		
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: NOZZLES - N8

GENERAL DESCRIPTION: Basic OMS Nozzle of Configuration 2A per Rockwell Lines

VL70-008306 and VL70-000089"B". Intersection of nozzle exit plane and
nozzle centerline at $X_0 = 1570.75$, $Y_0 = \pm 99.25$, $Z_0 = 507.25$

MODEL SCALE = 0.010

DRAWING NO. VL70-008306, VL70-000089"B", SS-A00092

DIMENSIONS

FULL SCALE

MODEL SCALE

Mach No. _____

Length ~ in.

Gimbal Point to Exit Plane _____

Throat to Exit Plane _____

Diameter ~ in.

Exit _____

Throat _____

Inlet _____

Area ~ ft²./Nozzle

Exit _____

Throat _____

Gimbal Point (station) ~ in.

X _____

Y _____

Z _____

Null Position ~ deg.

Pitch _____

Yaw (Outb'd) _____

50.00

N/A

28.00

13.635

1518.0

+88.0

492.0

15°49'

+12°17'

0.500

N/A

0.280

0.00136

15.180

0.880

4.920

15°49'

+12°17'

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: MPS NOZZLES - N 24GENERAL DESCRIPTION: Configuration 3A MPS NozzlesMODEL SCALE = 0.010DRAWING NO. VL70-000140A, VL70-00503CADIMENSIONSFULL SCALEMODEL SCALE

Mach No. _____

Length ~ in.

Gimbal Point to Exit Plane

Throat to Exit Plane

Diameter ~ in.

Exit

Throat

Inlet

Area ~ ft². /Nozzle

Exit

Throat

Gimbal Point (station) ~ in.

Upper Nozzle

X

Y

Z

Lower Nozzles

X

Y

Z

Null Position ~ deg.

Upper Nozzle

Pitch

Yaw

Lower Nozzles

Pitch

Yaw (outb'd)

91.000

0.910

45.16585

0.00452

144.5

14.450

0

0

4.3

4.430

1468.16996

14.68170

+53.00000

+

0.530

342.63988

3.42640

16°

16°

0°

0°

10°

10°

3.5°

3.5°

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ET PROTUBERANCE - PT₉

GENERAL DESCRIPTION: LOX Vent line fairing on tank, T₂₀, nose.

MODEL SCALE: 0.010

MODEL DRAWING: SS-A00117

DRAWING NO.: VL78-000062

DIMENSIONS:

		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	350.9	3.509
	Y _T	0.00	0.0
Trailing edge at:	X _T	959.7	9.597
	Y _T	60.00	0.600

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ET PROTUBERANCE - PT₁₀

GENERAL DESCRIPTION: LOX Feedline fairing on tank, T₂₀, tank secured to tank.

MODEL SCALE: 0.010

DRAWING NO.: VL78-000062

DIMENSIONS:

		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	985.7	9.857
	Y _T	- 70.0	- 0.700
Trailing edge at:	X _T	2071.50	20.715
	Y _T	- 70.00	- 0.700

Centerline of LOX feedline located radially at $\phi = 23.5^\circ$

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ET PROTUBERANCE - PT₁₁

GENERAL DESCRIPTION: LH₂ feedline fairing on T₂₀ tank secured to tank.

MODEL SCALE: 0.010

DRAWING NO.: VL78-000031A

DIMENSIONS:		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	985.70	9.857
	Y _T	70.00	0.700
Trailing edge at:	X _T	2071.50	20.715
	Y _T	70.00	0.700
Centerline of LH ₂ feedline radially located at $\phi = 34.5^\circ$			

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ET PROTUBERANCE - PT₁₂

GENERAL DESCRIPTION: Lightning rod attached to ET nose.

MODEL SCALE: 0.010

DRAWING NO.: VL78-000068A

DIMENSIONS:

	<u>FULL SCALE</u>	<u>MODEL NO.</u>
Length	30.90	0.309
Diameter, In.	3.20	0.320

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: RUDDER - R5GENERAL DESCRIPTION: 2A, 3 and 3A Configuration per Rockwell LinesVL70-000095Model Scale = 0.010DRAWING NUMBER: VL70-000095DIMENSIONS:FULL-SCALEMODEL SCALEArea - FT²106.380.0106

Span (equivalent) - IN.

201.02.010

Inb'd equivalent chord

91.5850.916

Outb'd equivalent chord

50.8330.508Ratio movable surface chord/
total surface chord0.4000.400

At Inb'd equiv. chord

0.4000.400

At Outb'd equiv. chord

Sweep Back Angles, degrees

Leading Edge

34.8334.83

Tailing Edge

26.2526.25

Hingeline

34.8334.83Area Moment (Normal to hinge line)- FT³526.130.000526

Product of Area and Mean Chord

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : EXTERNAL TANK - T₂₀

GENERAL DESCRIPTION : External oxygen-hydrogen tank.

MODEL SCALE: 0.010

DRAWING NUMBER : VL72-000131, VL78-000062

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length, In. (Nose @ $X_T=328.92$)	<u>1846.905</u>	<u>18.469</u>
Max Width, In. (@ $X_T = 975.675$)	<u>333.2</u>	<u>3.332</u>
Major Max Depth, In.	<u>330.2</u>	<u>3.302</u>
Fineness Ratio	<u>5.65713</u>	<u>5.65713</u>
Area - Ft ²	<u> </u>	<u> </u>
Max. Cross-Sectional (@ $X_T = 975.675$)	<u>605.534</u>	<u>0.0606</u>
Planform Major cross section	<u>594.679</u>	<u>0.0595</u>
W.P. of Tank Centerline, Z, In. Wetted	<u>400.000</u>	<u>0.0400</u>
Base (On 330.2 Dia.)	<u>594.679</u>	<u>0.0595</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: VERTICAL - V₁GENERAL DESCRIPTION: Centerline vertical tail, double-wedge airfoil with rounded leading edge.NOTE: Same as V₅, but with manipulator housing removed.MODEL SCALE: 0.010

DRAWING NUMBER:

VL70-000139DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATA

Area (Theo) Ft ²	<u>425.92</u>	<u>0.0425</u>
Planform		
Span (Theo) In	<u>315.72</u>	<u>3.157</u>
Aspect Ratio	<u>1.675</u>	<u>1.675</u>
Rate of Taper	<u>0.507</u>	<u>0.507</u>
Taper Ratio	<u>0.404</u>	<u>0.404</u>
Sweep Back Angles, degrees		
Leading Edge	<u>45.000</u>	<u>45.000</u>
Trailing Edge	<u>26.249</u>	<u>26.249</u>
0.25 Element Line	<u>41.130</u>	<u>41.130</u>
Chords:		
Root (Theo) WP	<u>268.50</u>	<u>2.685</u>
Tip (Theo) WP	<u>108.47</u>	<u>1.085</u>
MAC	<u>199.81</u>	<u>1.998</u>
Fus. Sta. of .25 MAC	<u>1463.50</u>	<u>14.635</u>
W. P. of .25 MAC	<u>635.522</u>	<u>6.355</u>
B. L. of .25 MAC	<u>0.00</u>	<u>0.00</u>
Airfoil Section		
Leading Wedge Angle Deg	<u>10.000</u>	<u>10.000</u>
Trailing Wedge Angle Deg	<u>14.920</u>	<u>14.920</u>
Leading Edge Radius	<u>2.0</u>	<u>0.020</u>
Void Area	<u>13.17</u>	<u>0.131</u>
Blanketed Area	<u>0.00</u>	<u>0.00</u>

TABLE III. - MODEL DIMENSIONAL DATA - Concluded.

MODEL COMPONENT: WING-W 107GENERAL DESCRIPTION: Configuration 3 per Rockwell Lines VL70-000139BNOTE: Same as W103, except cuff, airfoil and incidence angle.

Model Scale = 0.010

TEST NO.

DWG. NO. VL70-000139B

DIMENSIONS:

FULL-SCALE

MODEL SCALE

TOTAL DATA

Area (Theo.) Ft^2

Planform

2690.00

0.2690

Span (Theo In.)

936.68

9.3668

Aspect Ratio

2.265

2.265

Rate of Taper

1.177

1.177

Taper Ratio

0.200

0.200

Dihedral Angle, degrees (@ TE of Elevon)

3.500

3.500

Incidence Angle, degrees

0.500

0.500

Aerodynamic Twist, degrees

+3.000

+3.000

Sweep Back Angles, degrees

Leading Edge

45.000

45.000

Trailing Edge

-10.24

-10.24

0.25 Element Line

35.209

35.209

Chords:

Root (Theo) B.P.O.O.

689.24

6.892

Tip, (Theo) B.P.

137.85

1.378

MAC

474.81

4.748

Fus. Sta. of .25 MAC

1136.89

11.3689

W.P. of .25 MAC

299.20

2.992

B.L. of .25 MAC

182.13

1.8213

EXPOSED DATA

Area (Theo) Ft^2

1752.29

0.1752

Span, (Theo) In. BP108

720.68

7.2068

Aspect Ratio

2.058

2.058

Taper Ratio

0.2451

0.2451

Chords

Root BP108

562.40

5.6240

Tip $1.00 \frac{b}{2}$

137.85

1.3785

MAC

393.03

3.9303

Fus. Sta. of .25 MAC

1185.31

11.8531

W.P. of .25 MAC

300.20

3.002

B.L. of .25 MAC

251.76

2.518

Airfoil Section (Rockwell Mod NASA)
XXXX-64Root $\frac{b}{2} =$

0.10

0.10

Tip $\frac{b}{2} =$

0.12

0.12

Data for (1) of (2) Sides

Leading Edge Cuff

Planform Area Ft^2

118.333

0.0118

Leading Edge Intersects Fus M. L. @ Sta

500

5.00

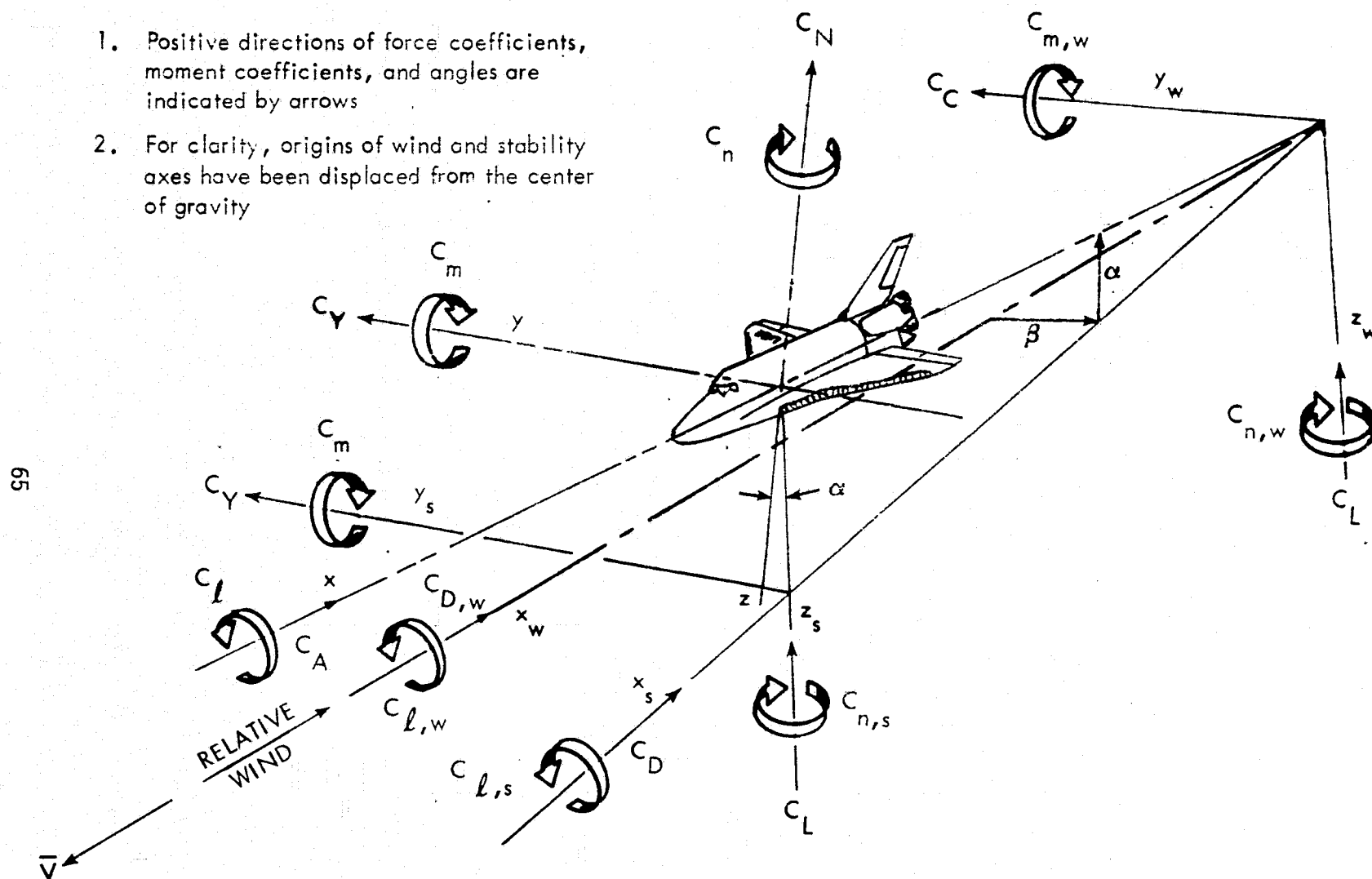
Leading Edge Intersects Wing @ Sta

1083.4

10.834

Notes:

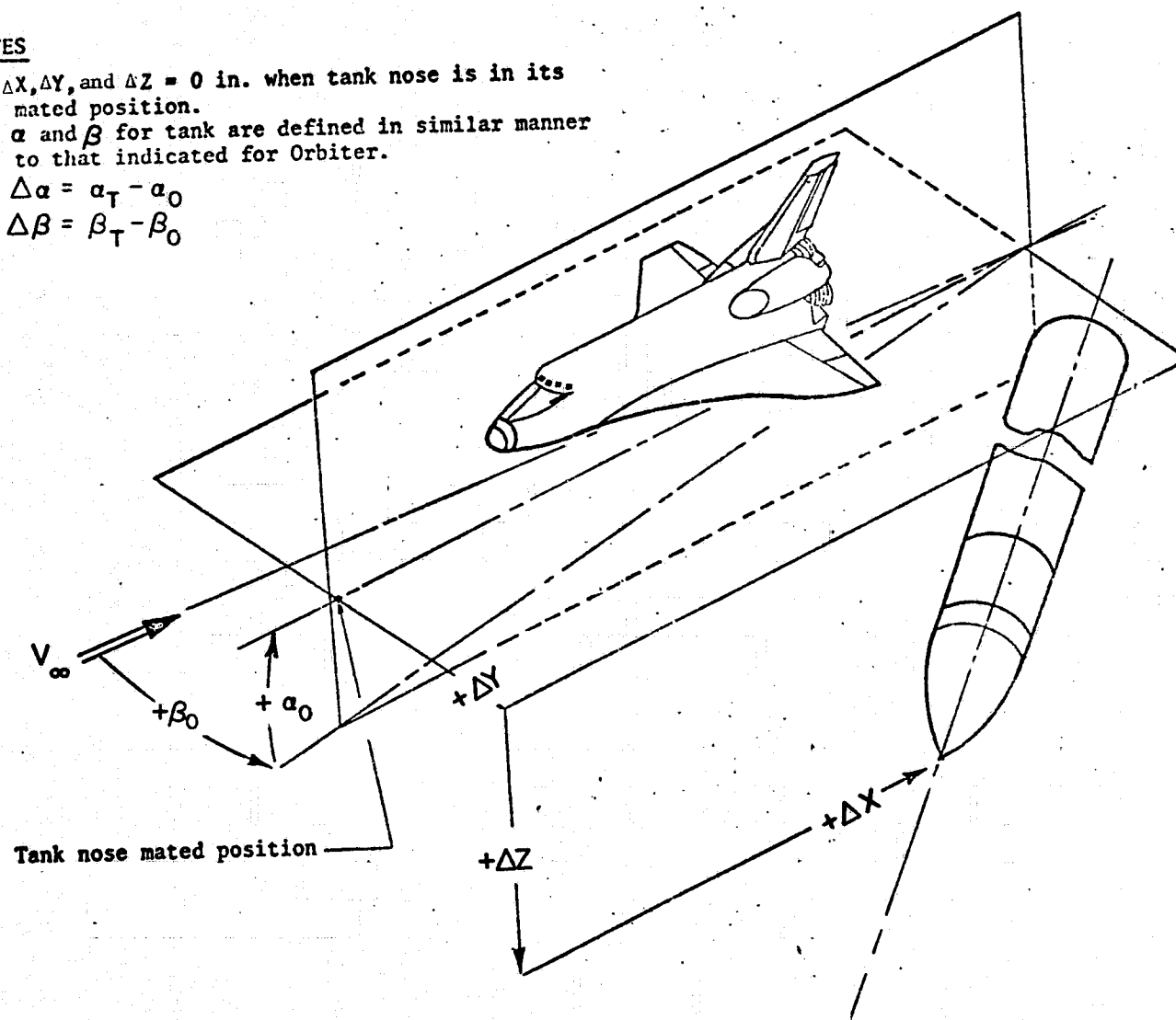
1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrows
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity



a. General
Figure 1. - Axis systems.

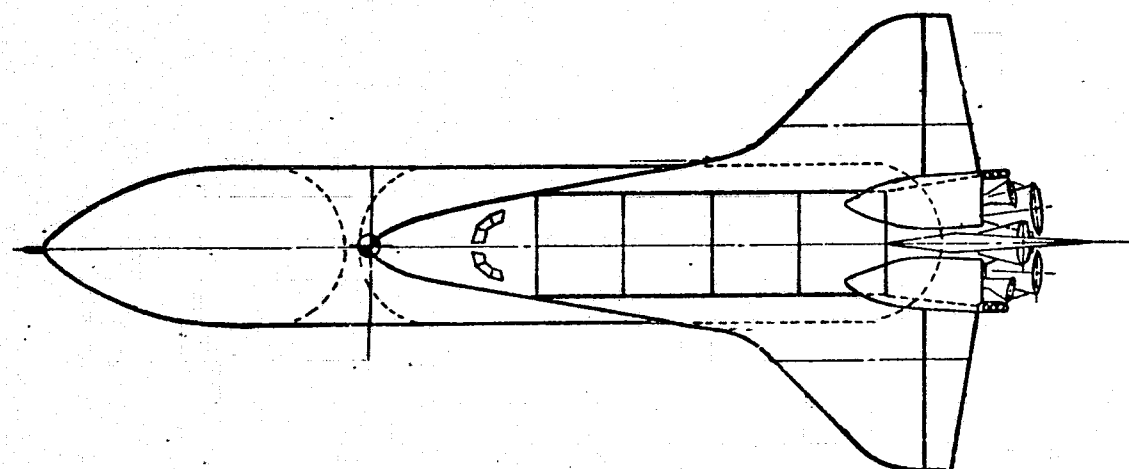
NOTES

1. $\Delta X, \Delta Y$, and $\Delta Z = 0$ in. when tank nose is in its mated position.
2. α and β for tank are defined in similar manner to that indicated for Orbiter.
3. $\Delta\alpha = \alpha_T - \alpha_0$
 $\Delta\beta = \beta_T - \beta_0$

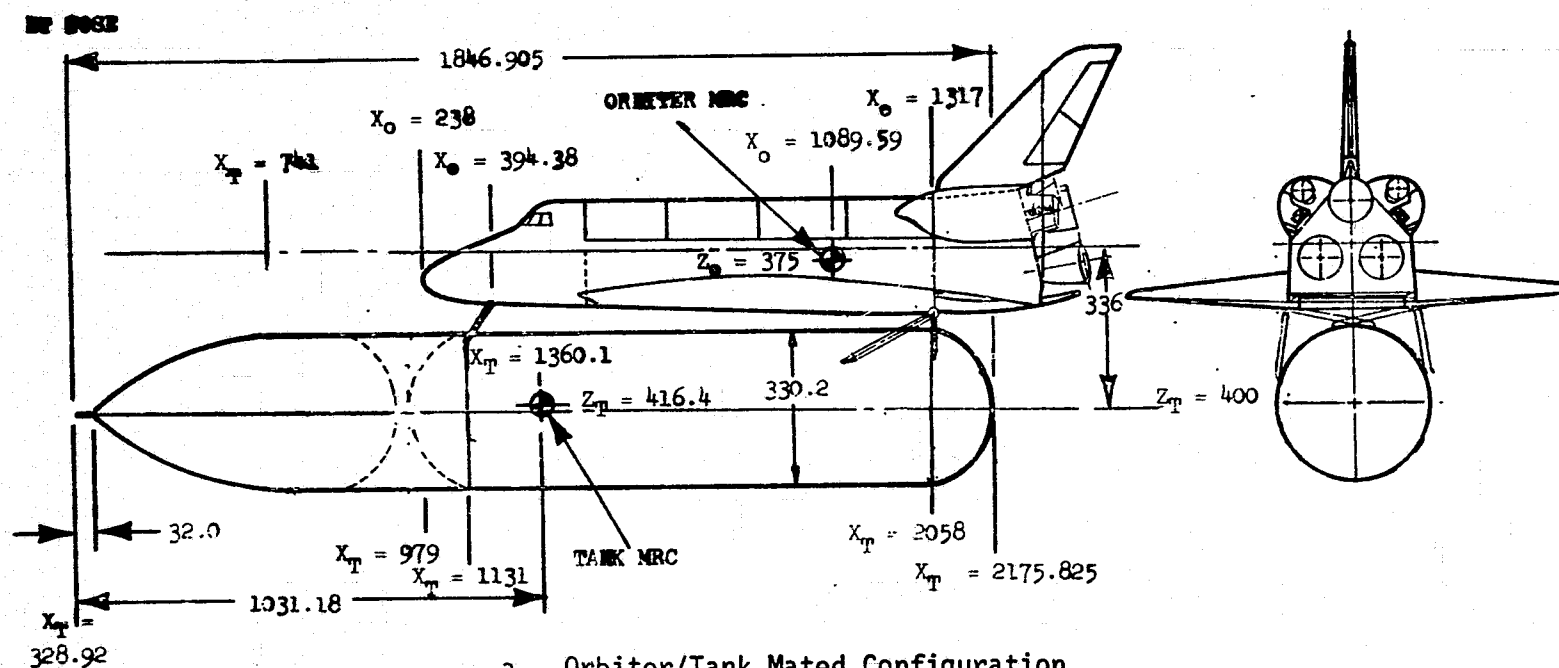


b. Tank Separation From Orbiter

Figure 1. - Concluded.

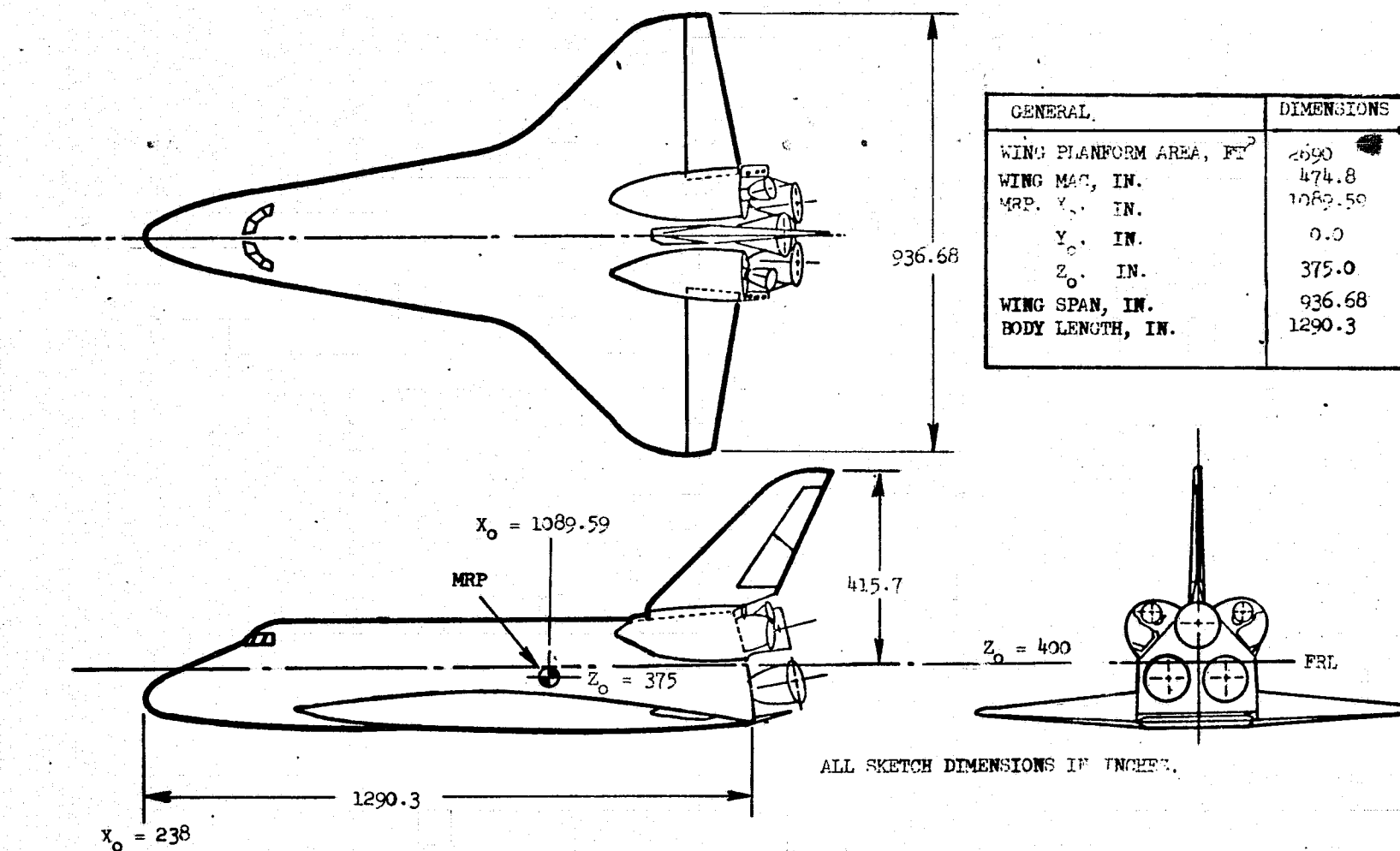


DATA REDUCTION REFERENCE	DIMENSIONS	
APPA	2690	FT ²
LENGTH (\bar{c} and b)	1290.3	IN.
ORBITER BODY LENGTH	1290.3	IN.
TANK BODY LENGTH	1846.905	IN.
ORBITER MRP:		
X_O	1089.59	IN.
Y_O	0.0	
Z_O	375.0	IN.
TANK MRP:		
X_T	1360.1	IN.
Y_T	0.0	IN.
Z_T	416.4	IN.



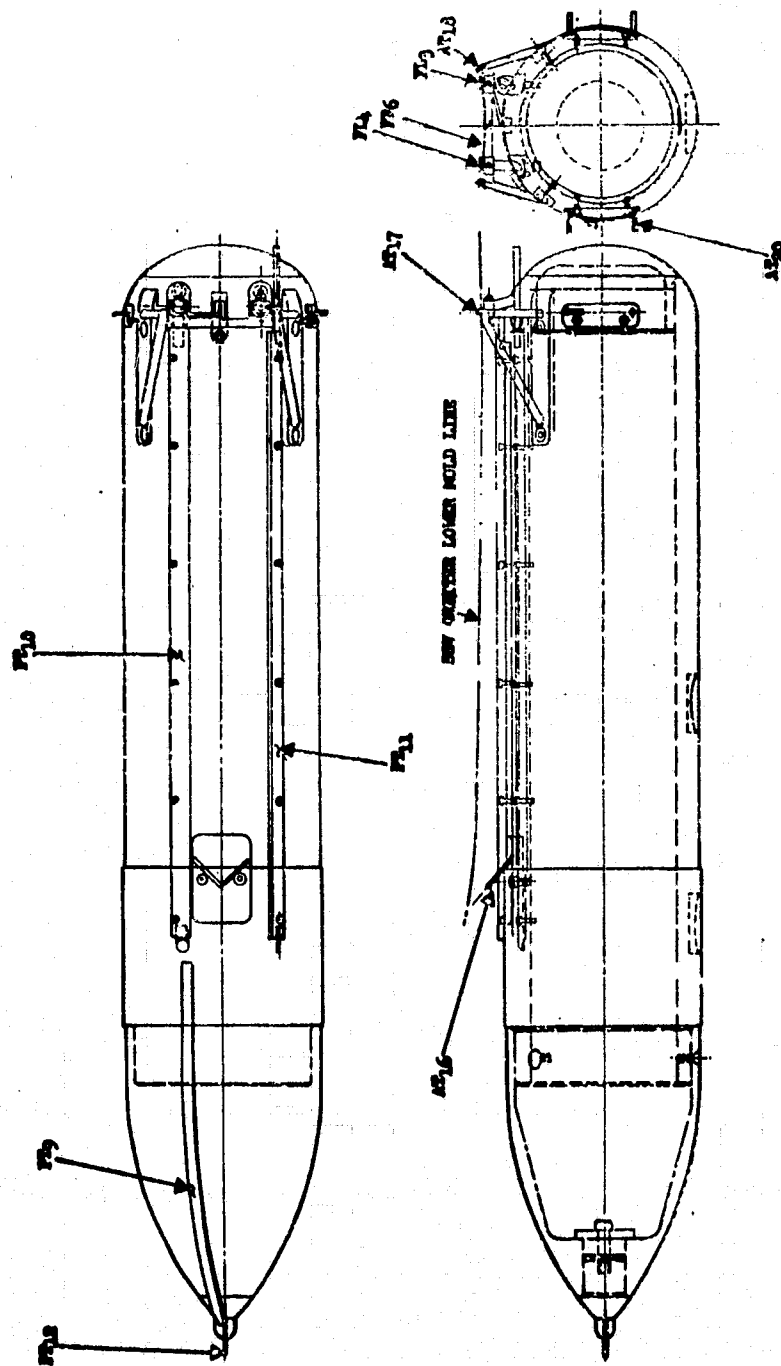
a. Orbiter/Tank Mated Configuration

Figure 2. - Model sketches.



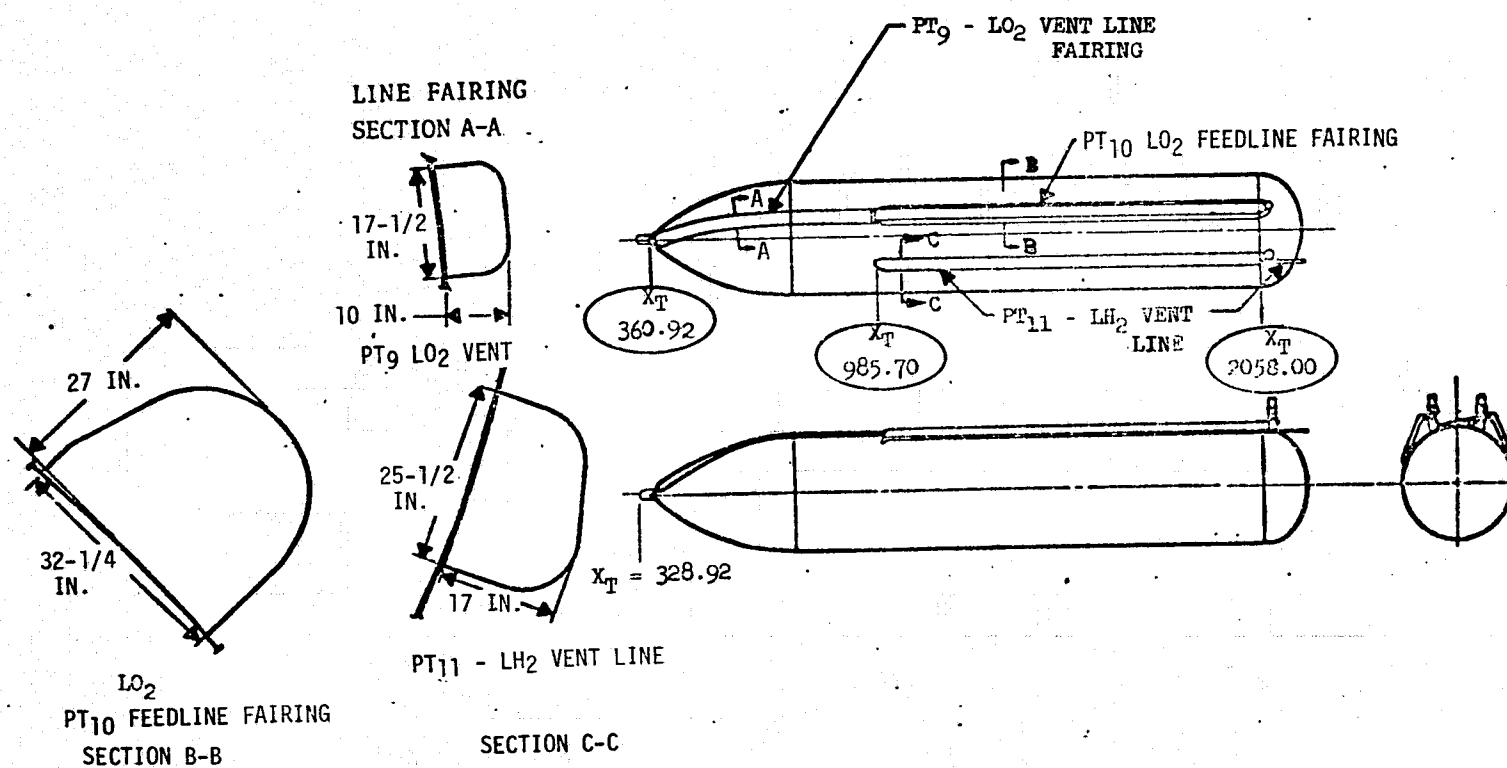
b. Orbiter Configuration

Figure 2. - Continued.



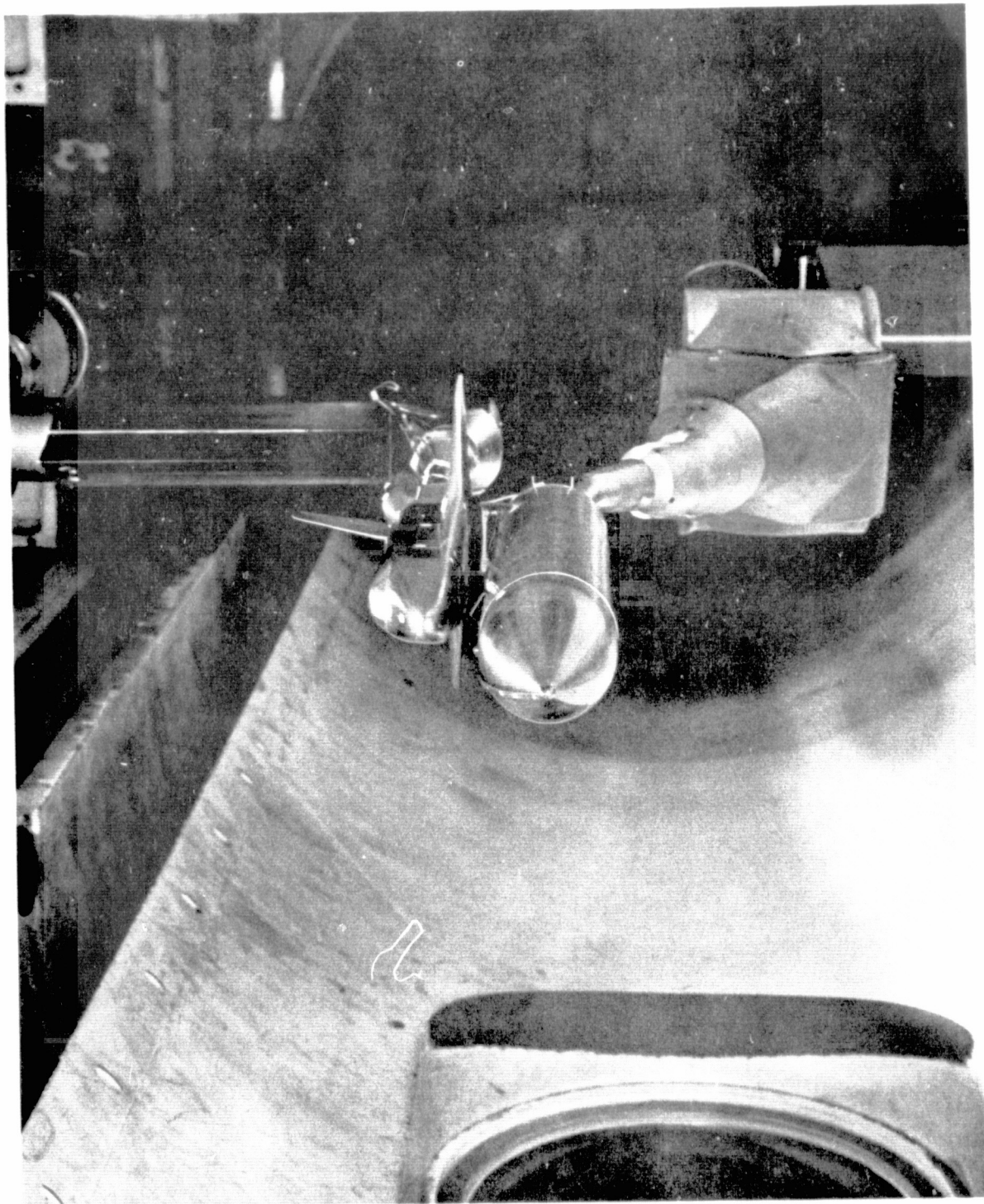
c. External Tank Configuration

Figure 2. - Continued.



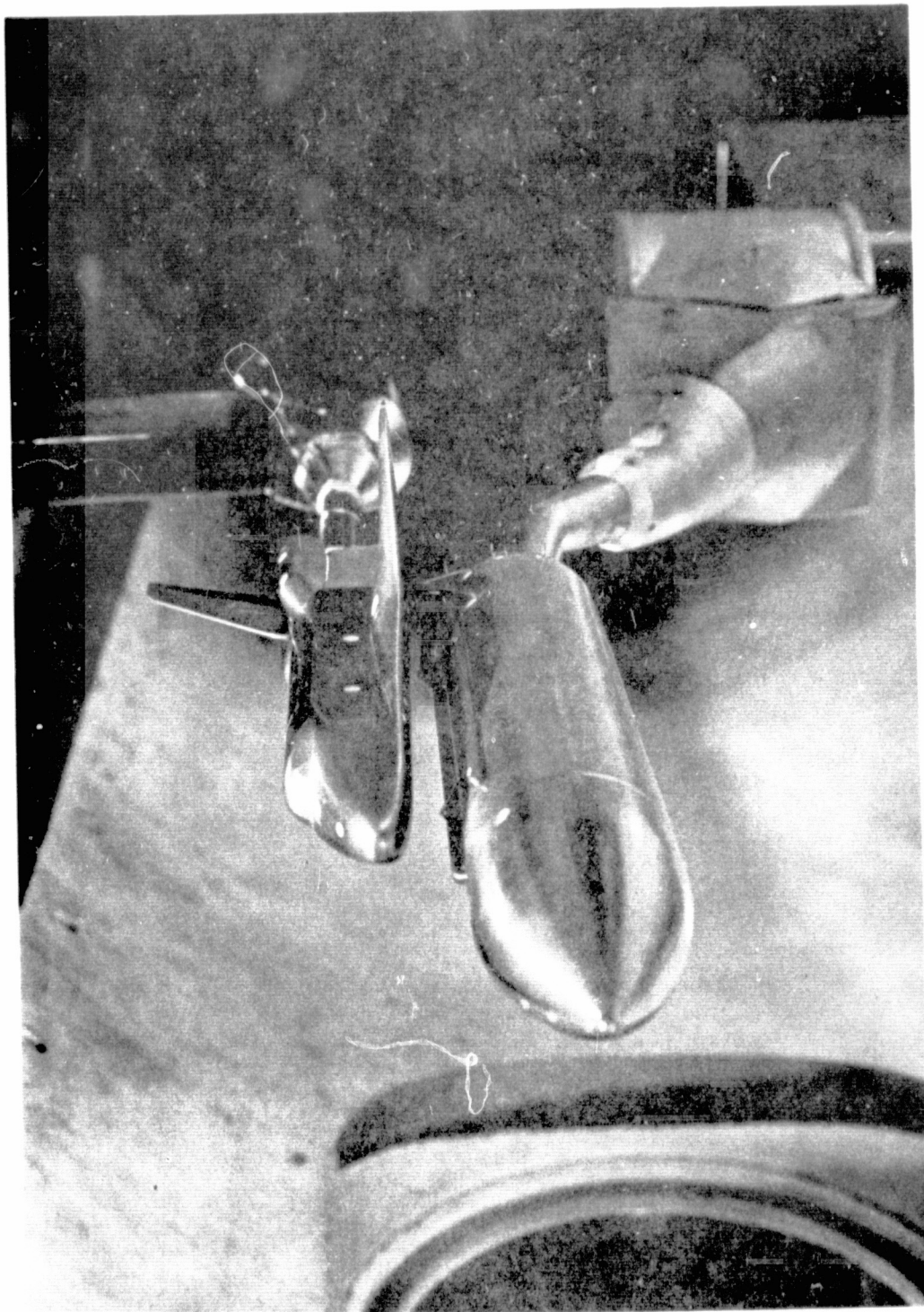
d. External Tank Protuberances

Figure 2. - Concluded.



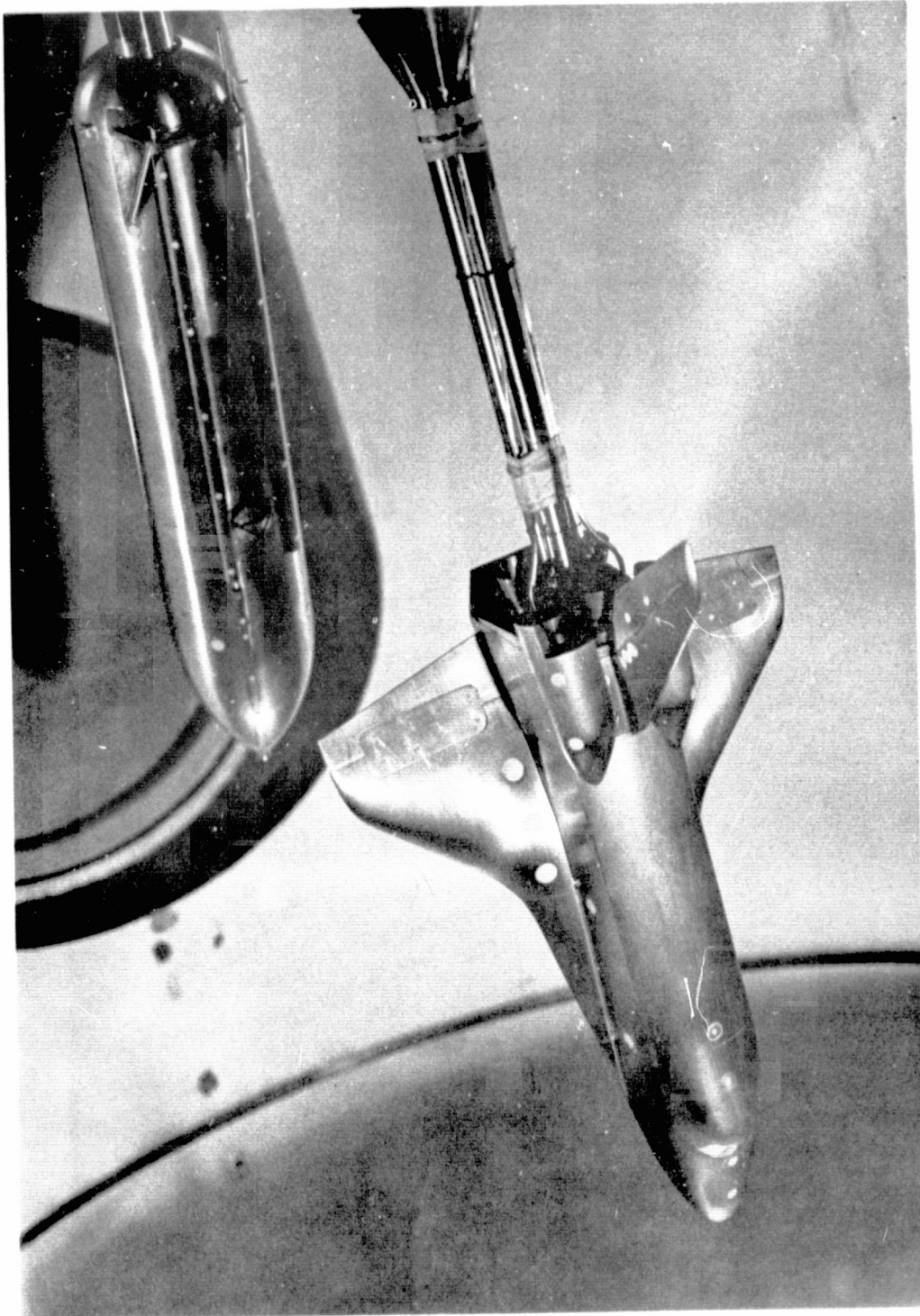
a. Mated Position

Figure 3. - Model photographs.



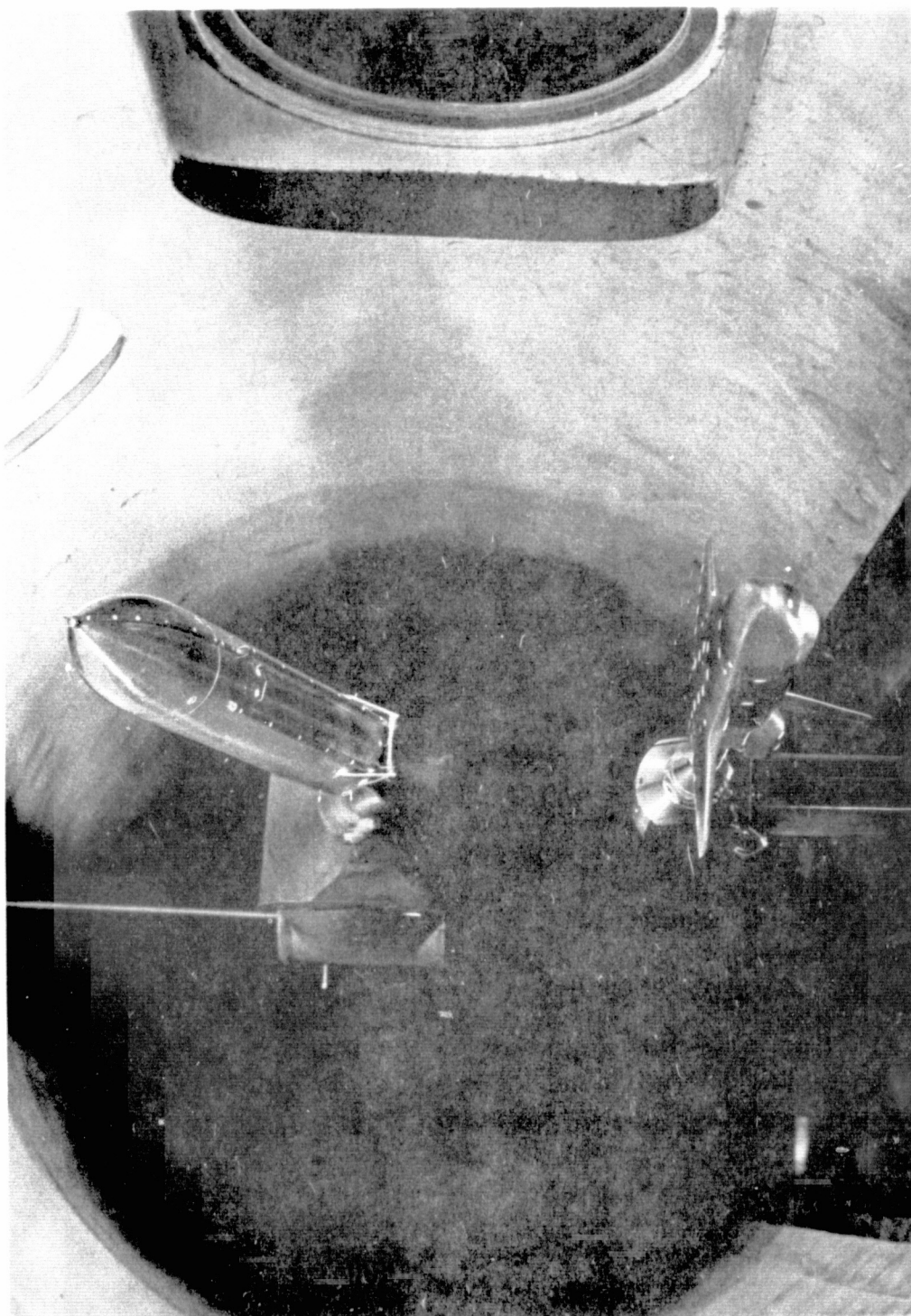
b. Near Separation Position

Figure 3. - Continued.



c. Median Separation Position

Figure 3. - Continued.



d. Large Separation Position

Figure 3. - Concluded.

DATA FIGURES

VOL. 1--Figures 4-22
VOL. 2--Figures 23-51

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO01)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.399	.000	BETA	.000
□	200.460	.000	DLTALF	.000
◇	400.550	.000	MACH	5.930
		.000	ELEVON	.000
		1.000	GRID	

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

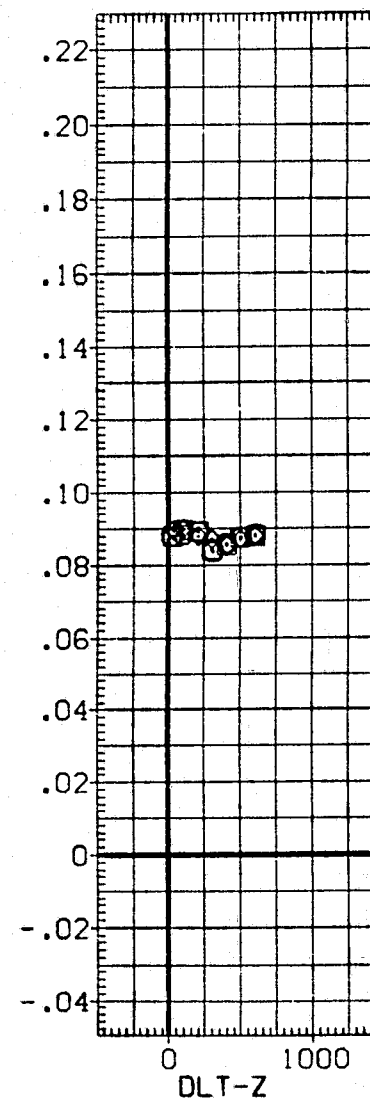
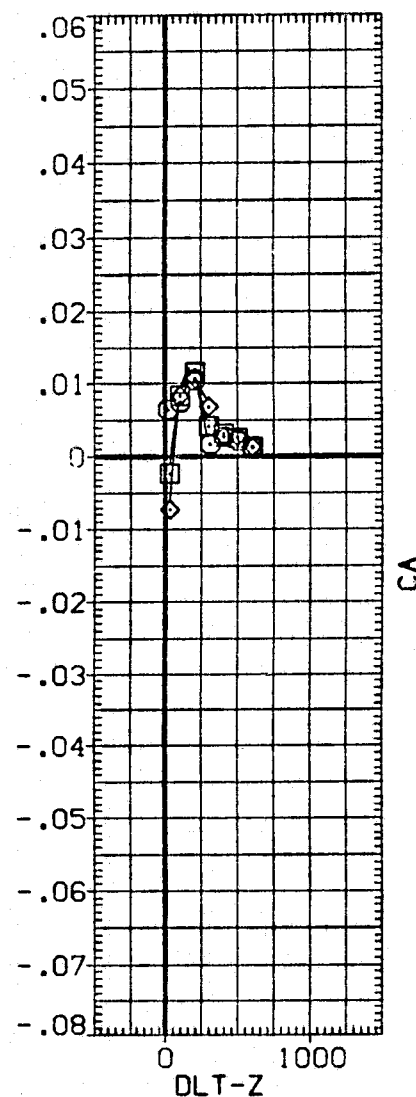
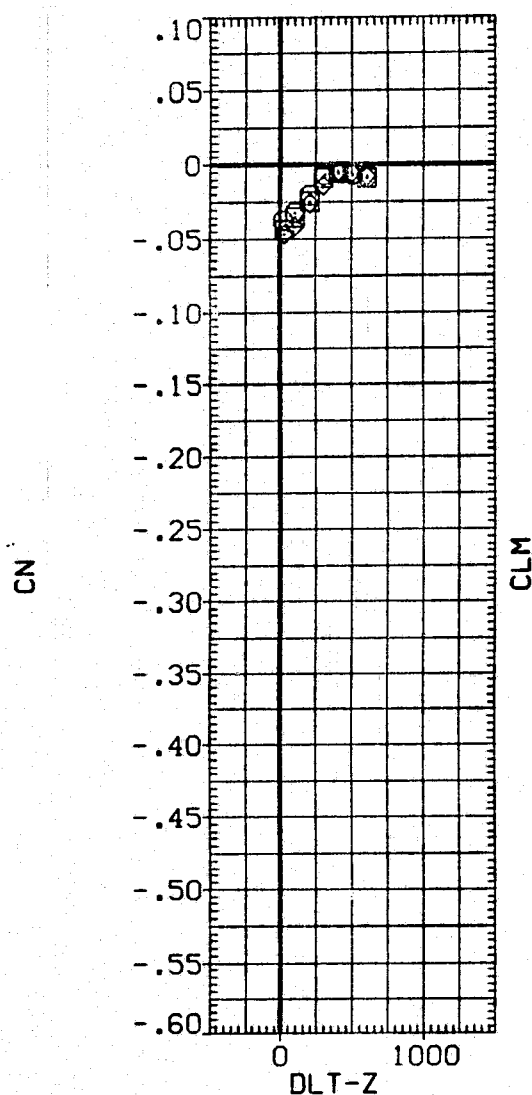


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

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AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO01)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.399	.000	DLTALF	.000
□	200.460	.000	MACH	5.930
◇	400.550	.000	ELEVON	.000
		GRID	1.000	

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

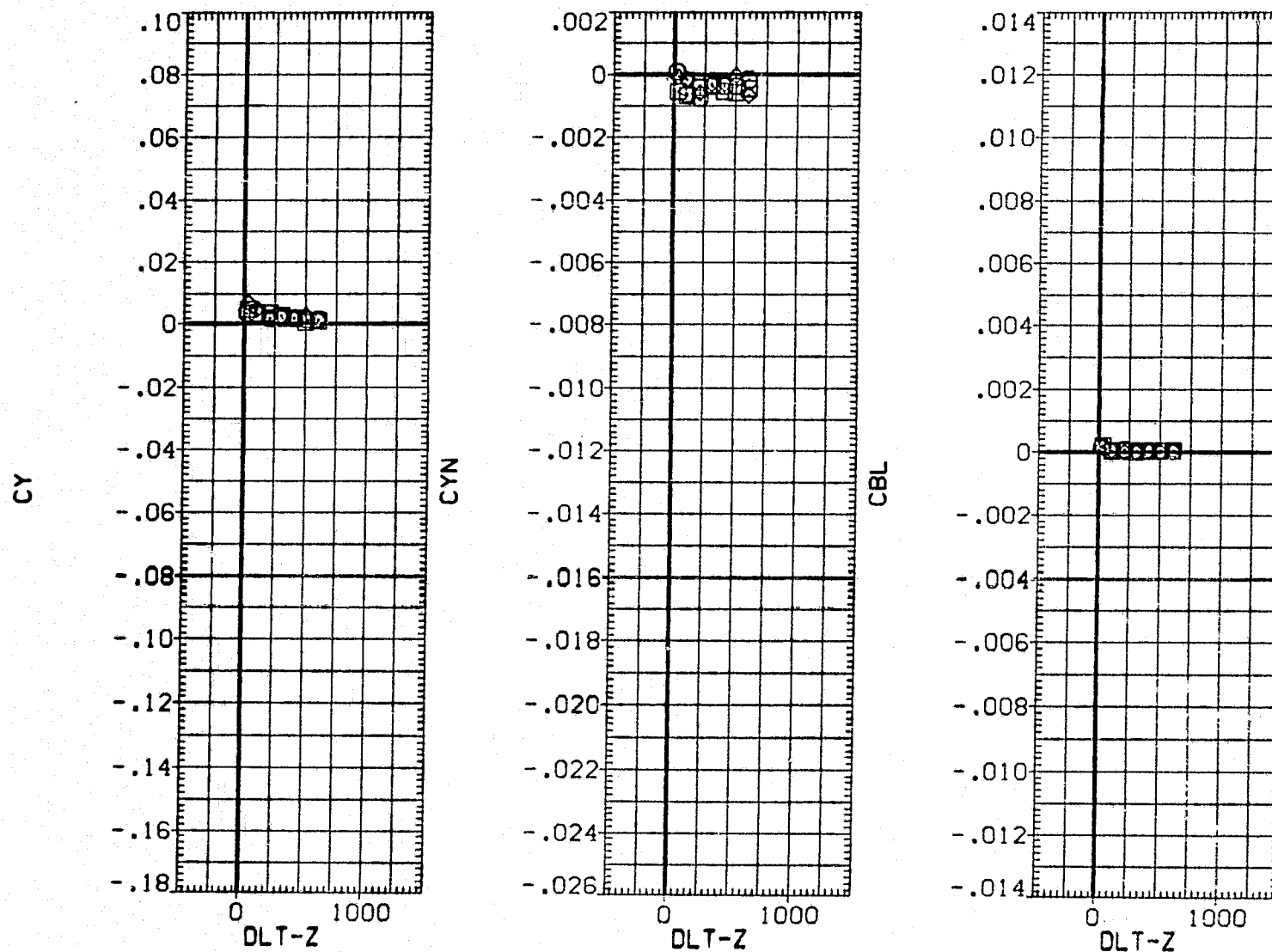


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO02)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.583		ALPHA	.000
□	200.520		DLTALF	-5.000
		DLTBTA	MACH	5.930
		AILRON	ELEVON	.000
		GRID		1.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

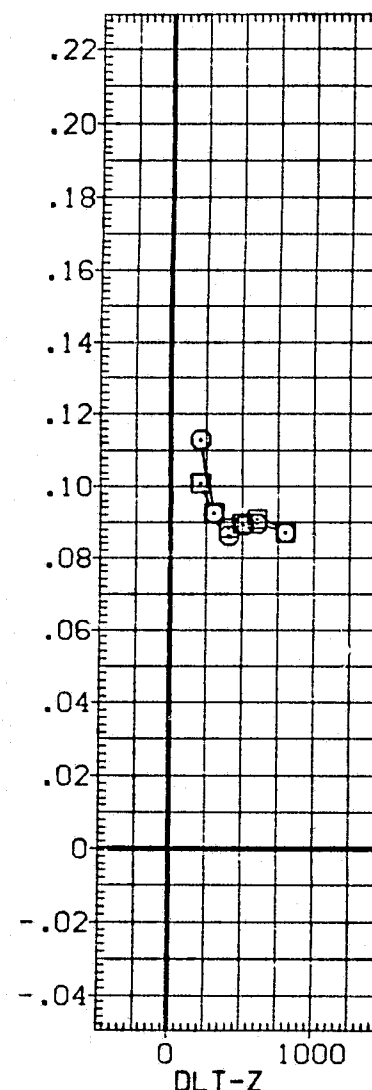
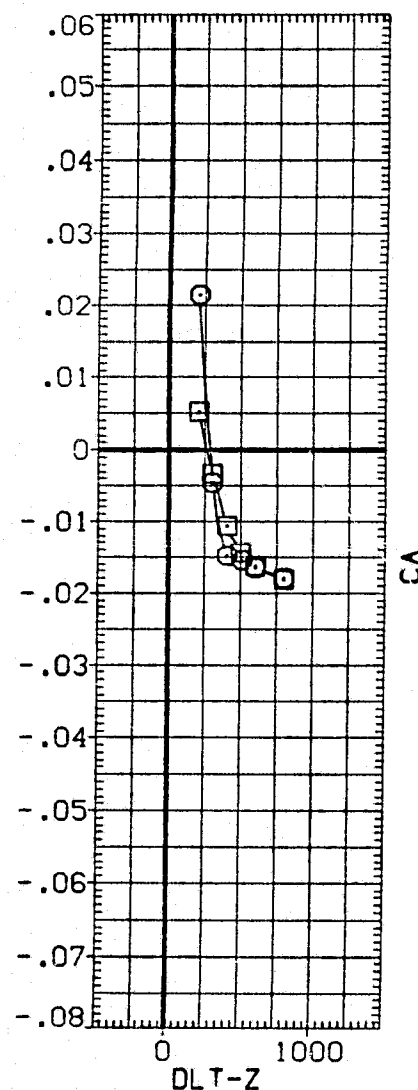
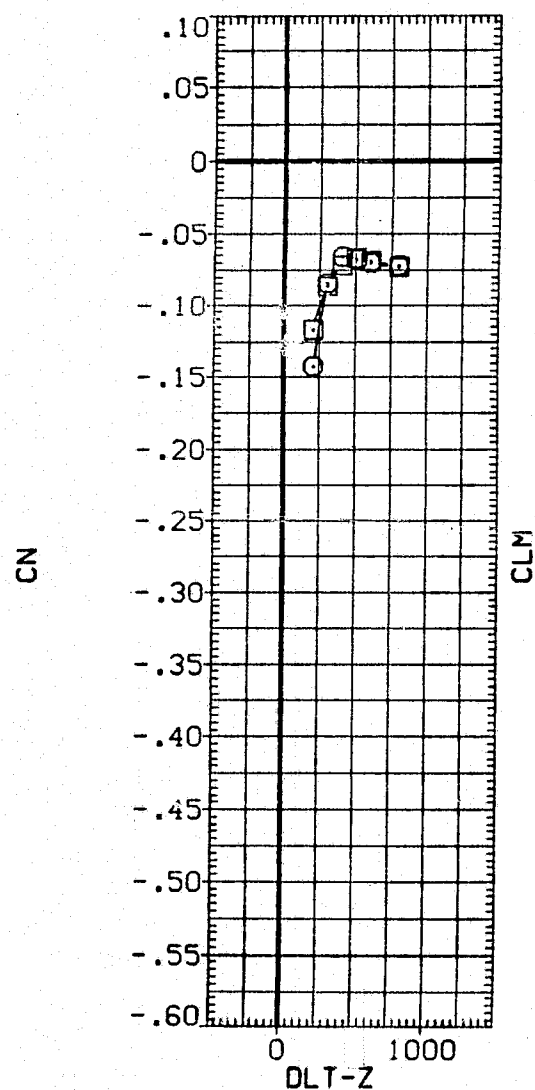


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO02)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.583	BETA	.000	.000
□	200.520	DLTBTA	.000	-5.000
		AILRON	.000	5.930
		GRID	1.000	.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

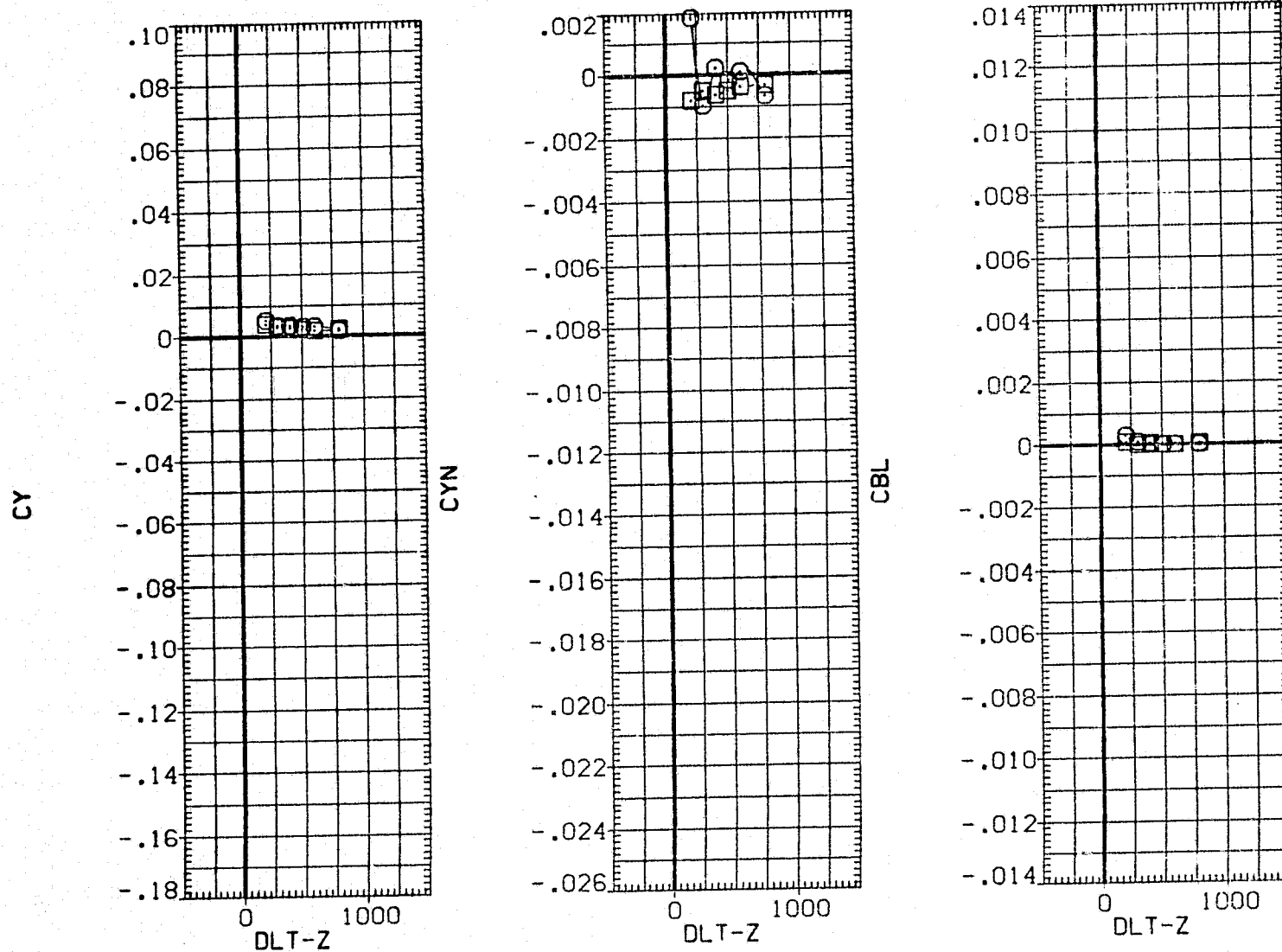


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO03)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.624	.000	.000	-10.000	5.930	.000
□	200.510	.000	.000			
◇	400.500	.000	.000			
		ATLRON	.000			
		GRID	1.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

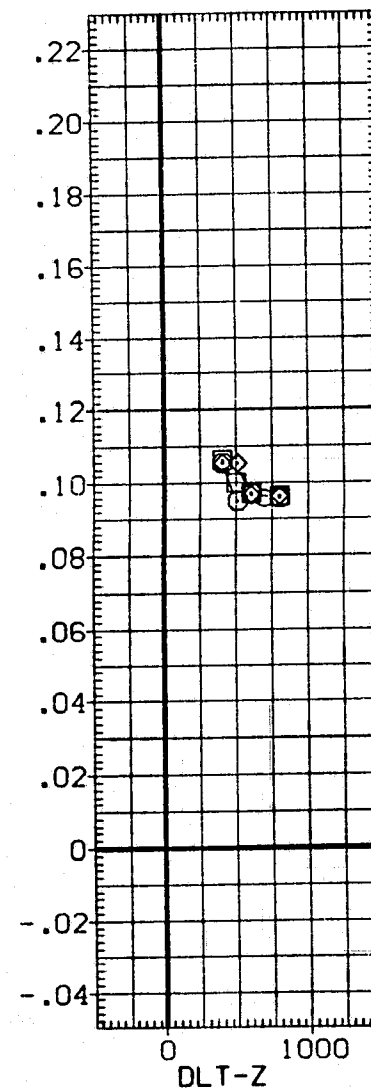
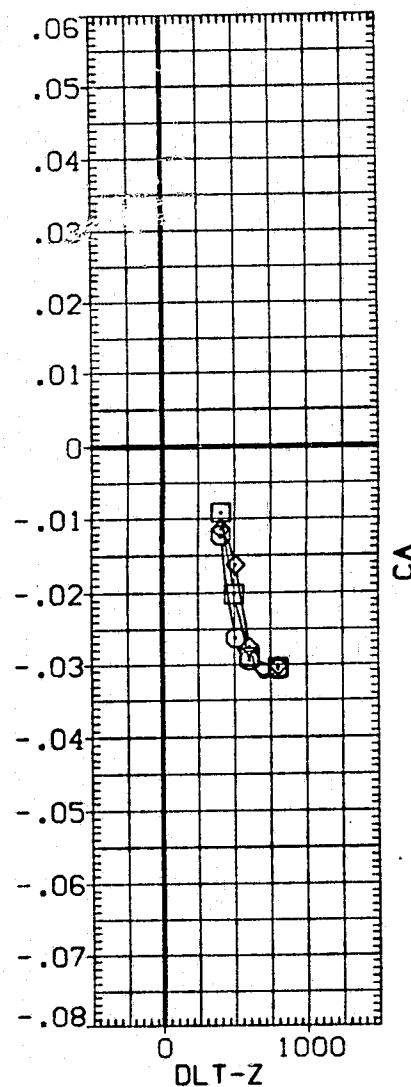
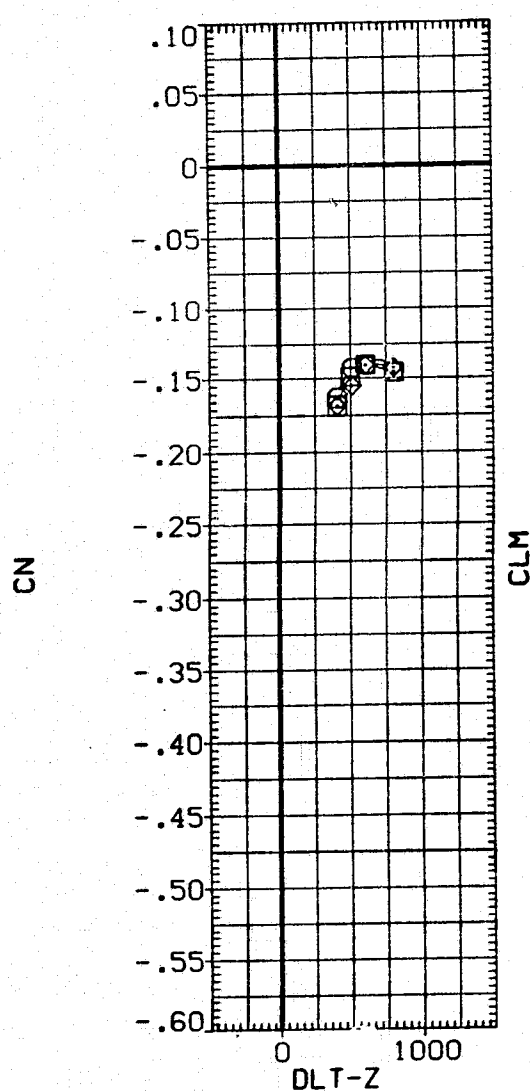


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO03)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.624	DLT-Y	.000	ALPHA	.000
○	200.510	BETA	.000	DLTALF	-10.000
□	400.500	DLTBTA	.000	MACH	5.930
◇		AILRON	.000	ELEVON	.000
		GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

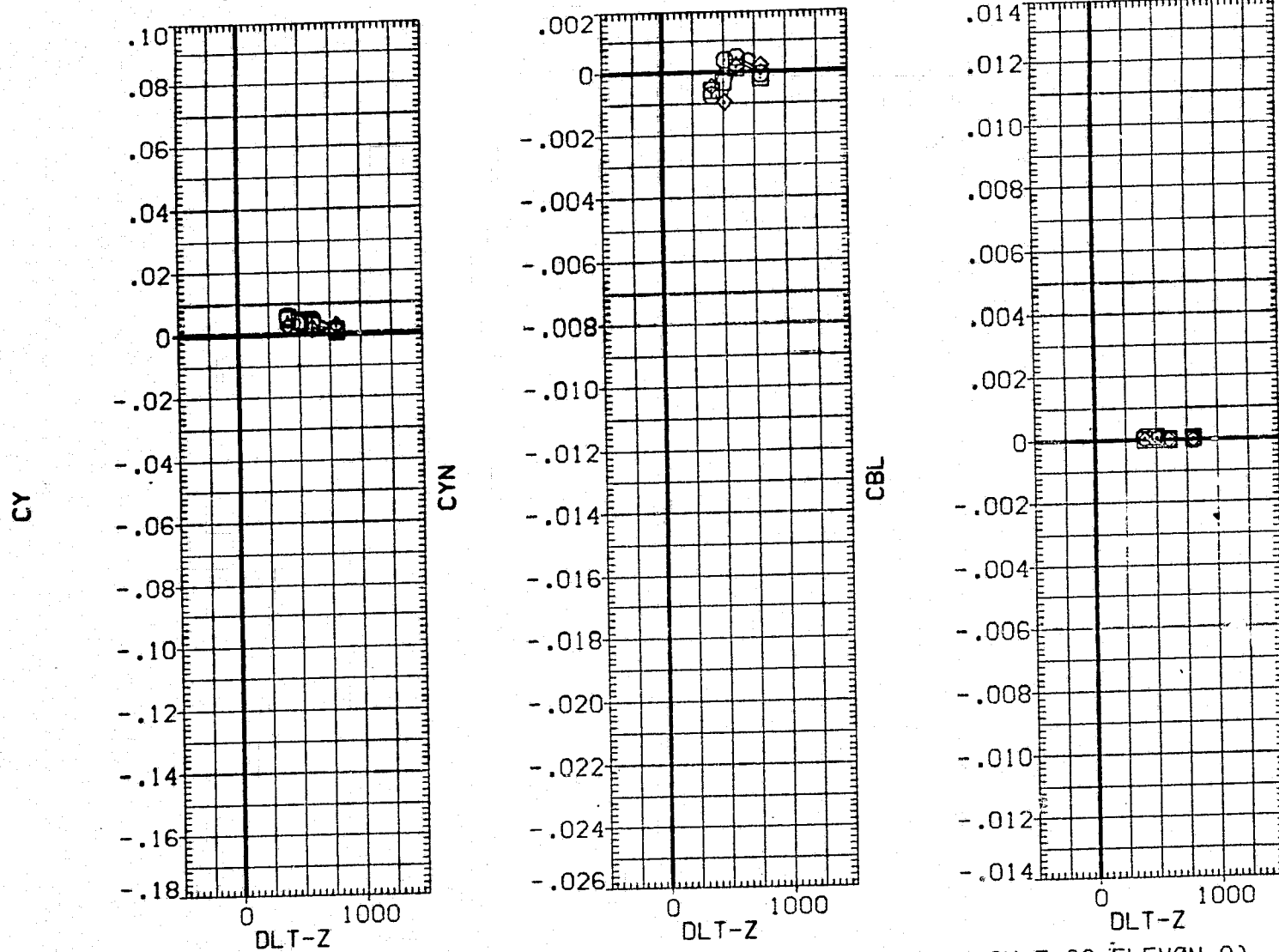


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO04)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.442	.000	ALPHA	.000
□	200.430	.000	DLTALF	-15.000
◇	400.470	.000	MACH	5.930
		.000	ELEVON	.000
		1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

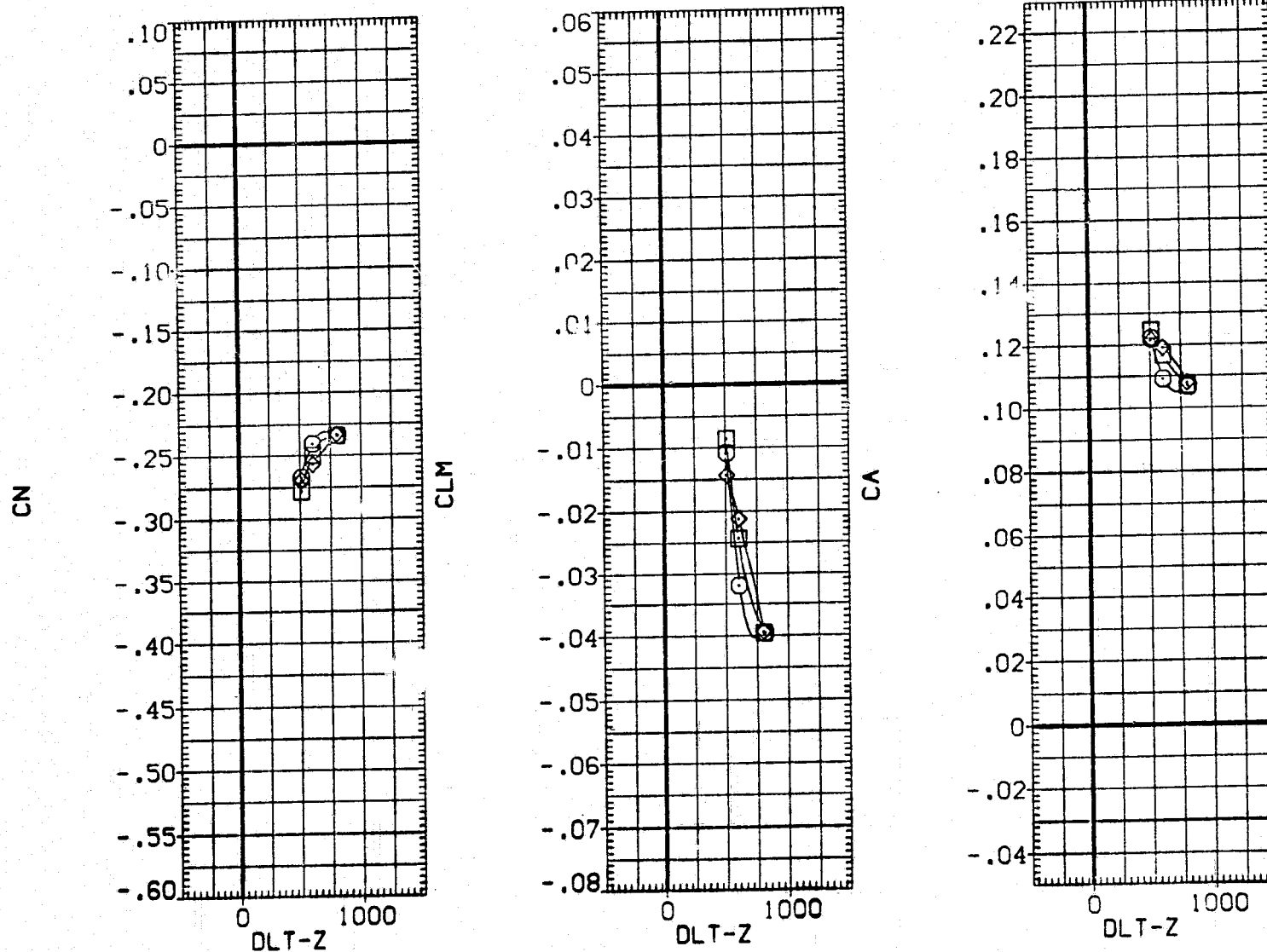


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO04)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.442	.000	ALPHA	.000
□	200.430	BETA	.000	DLTALF -15.000
◇	400.470	DLTBT	.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	1.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

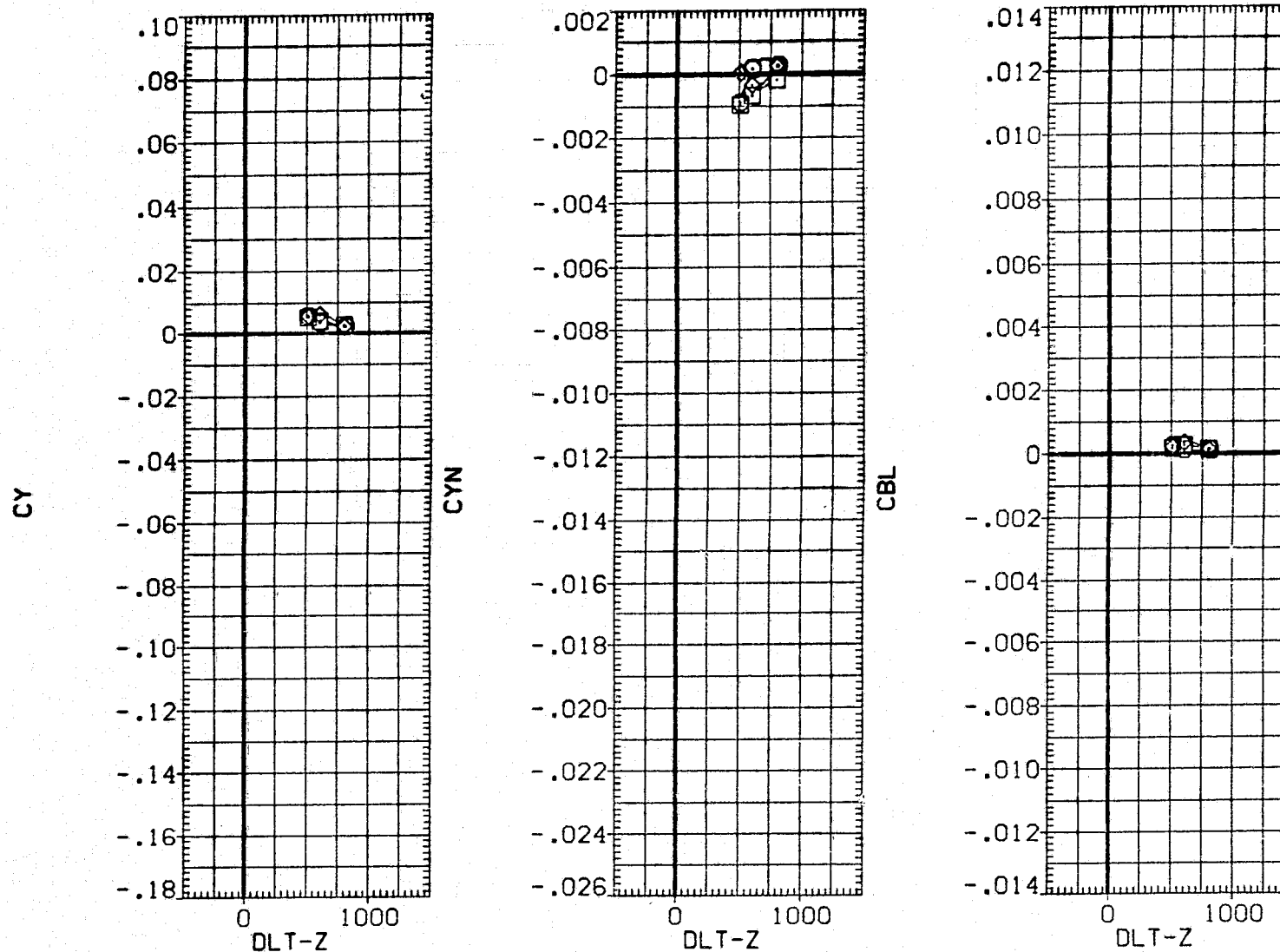


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO05)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.456	.000	.000	5.930	.000
□	200.420	.000	-20.000		
◇	400.420	.000	5.930		
	DLTBT	.000			
	AILRON	.000			
	GRID	1.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

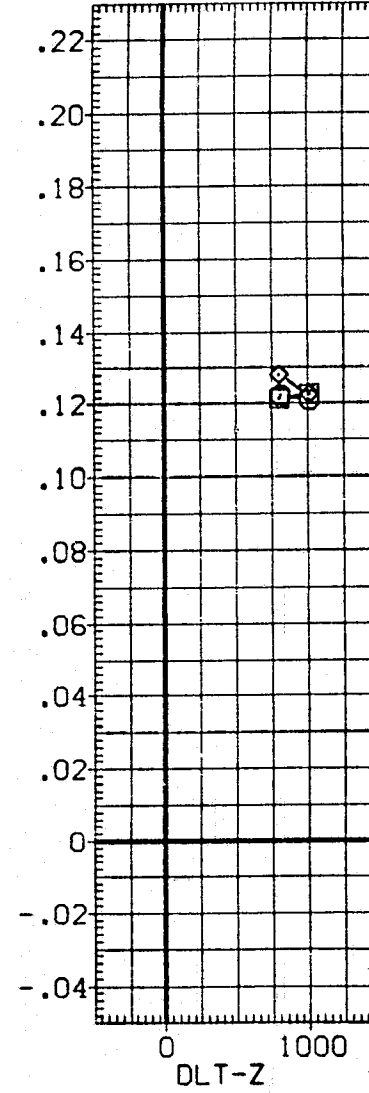
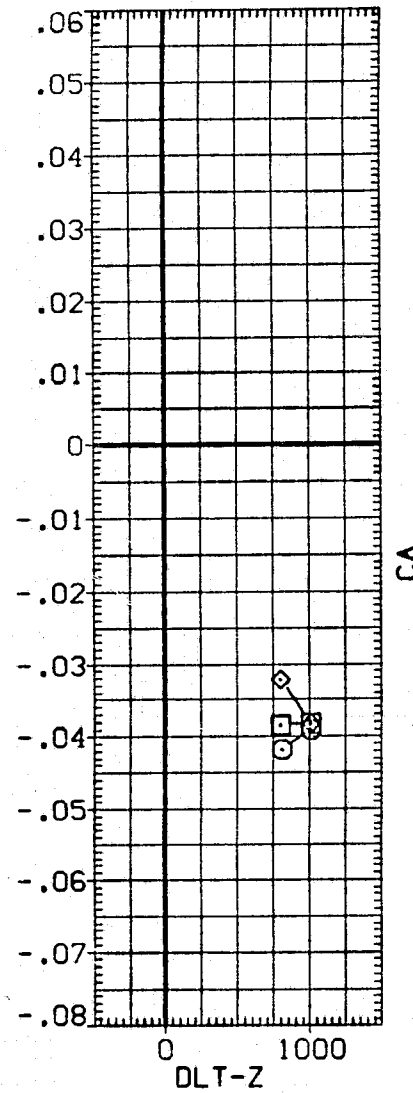
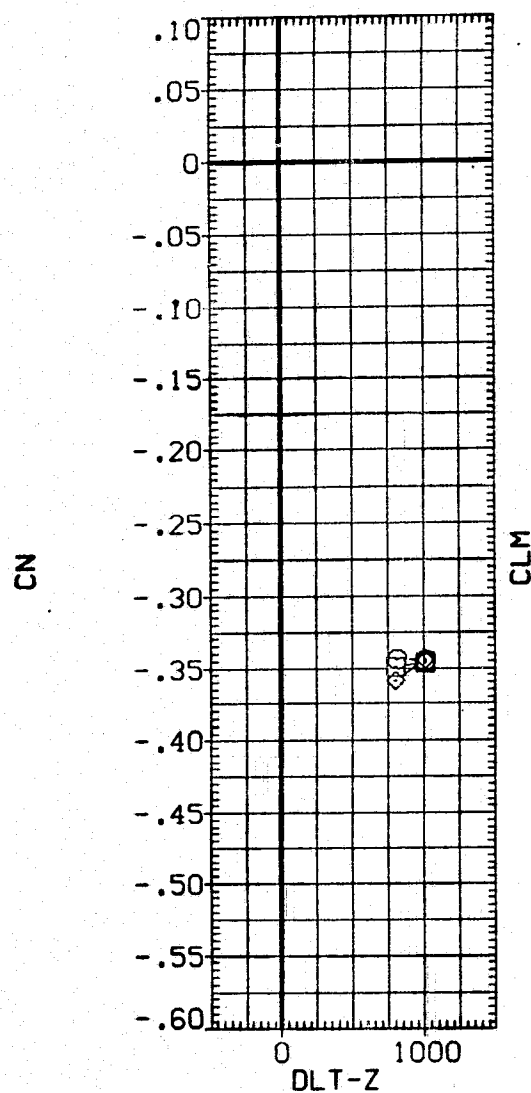


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO05)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.456	.000	DLTALF	.000
□	200.420	.000	MACH	-20.000
◇	400.420	.000	ELEVON	5.930
		AILRON		.000
		GRID		1.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

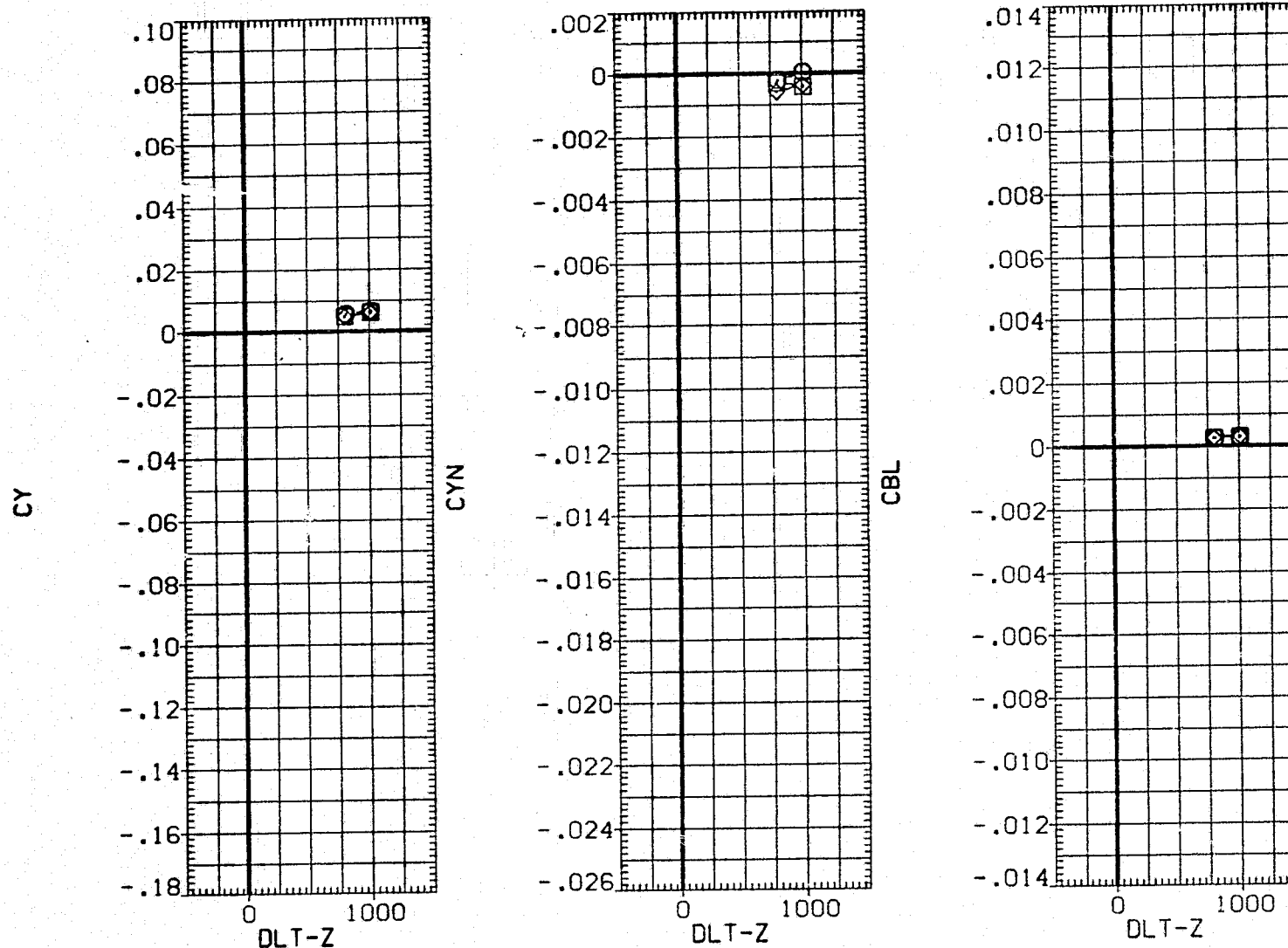


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO06)

SYMBOL	DLT-X	PARAMETRIC VALUES			
O	.538	DLT-Y	.000	ALPHA	.000
		BETA	.000	DLTALF	-20.000
		DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	26.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

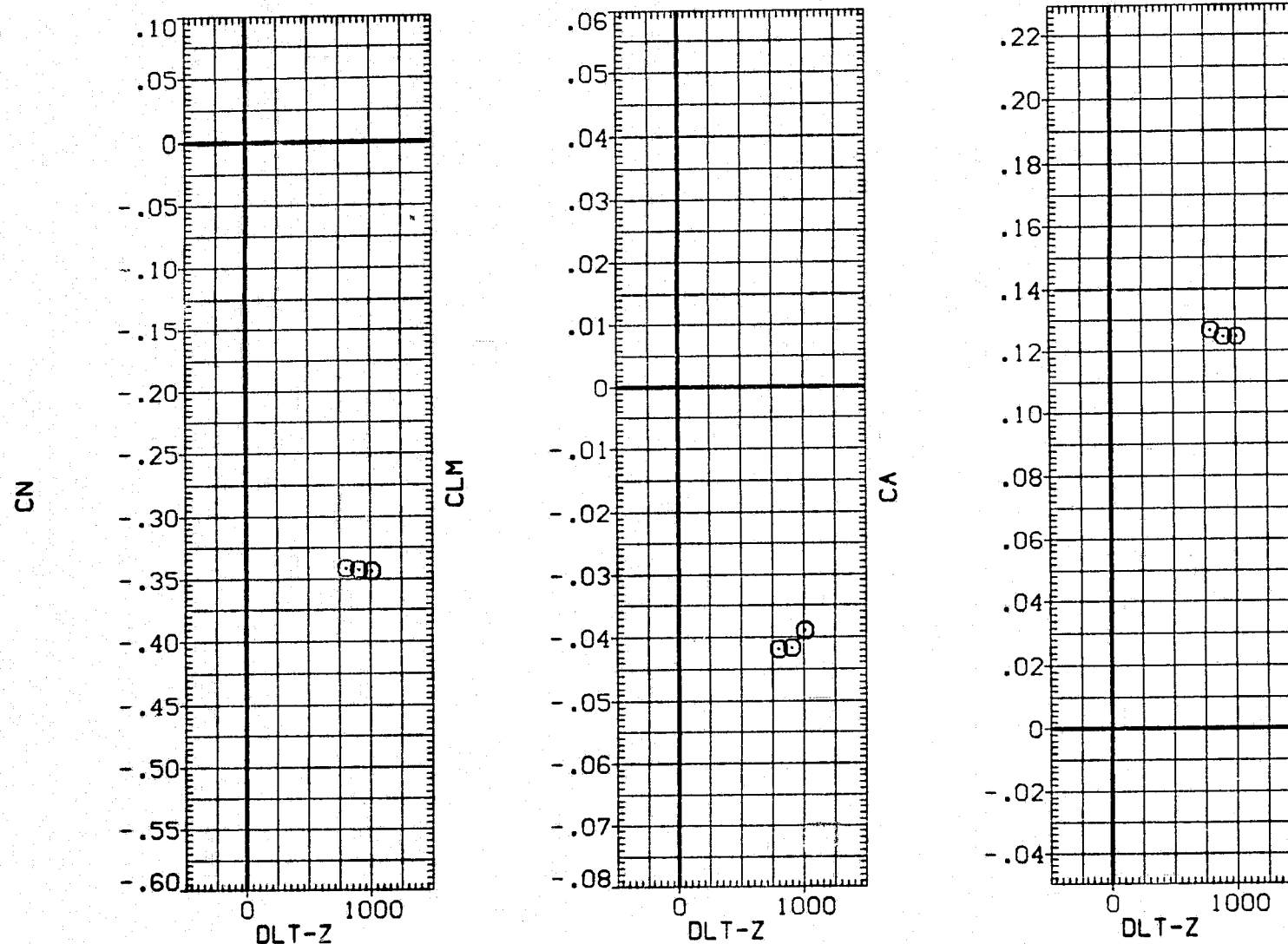


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO06)

SYMBOL	DLT-X	DLT-Y	BETA	DLTBT	AILRON	GRID	PARAMETRIC VALUES	ALPHA	DLTALF	MACH	ELEVON
O	.538	.000	.000	.000	.000	26.000		.000	-20.000	5.930	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

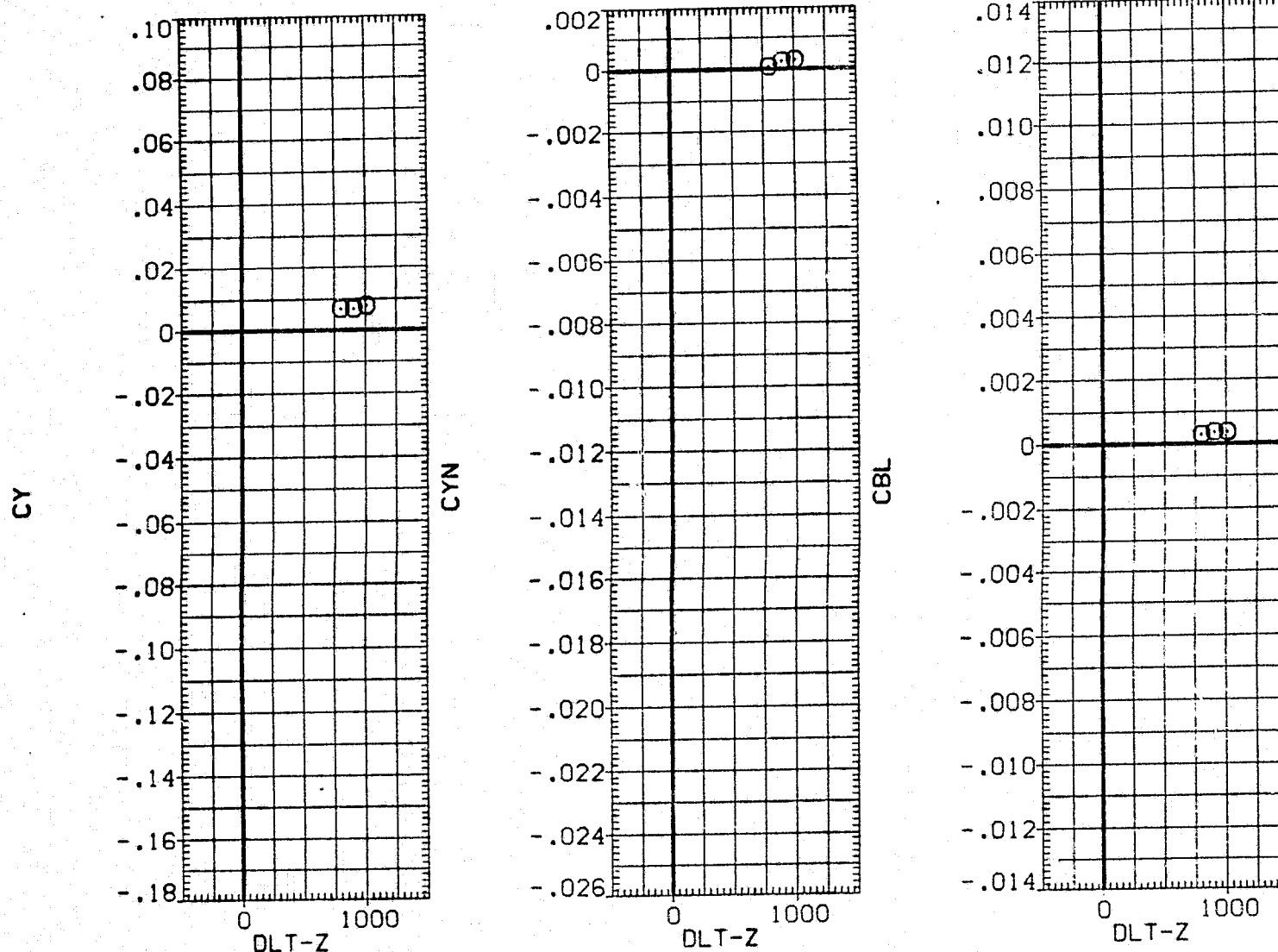


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO07)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.447	.000	DLTALF	-20.000
□	200.480	.000	MACH	5.930
◇	400.400	.000	ELEVON	.000
		AILRON		
		GRID	26.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

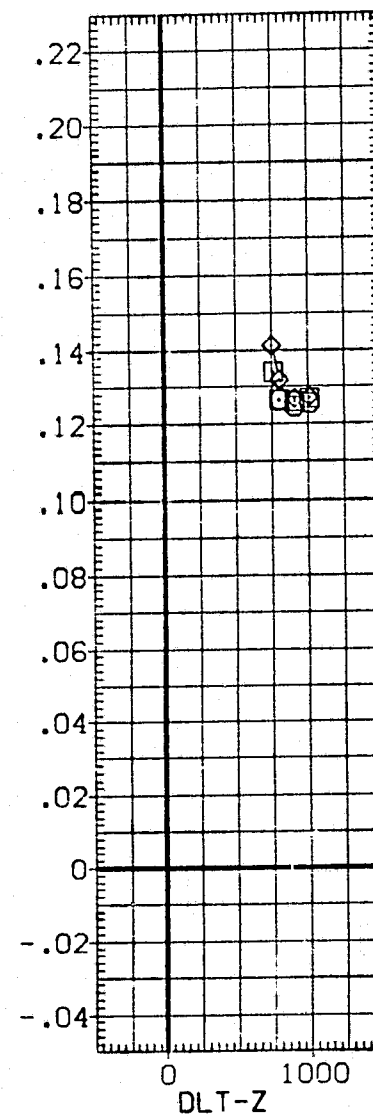
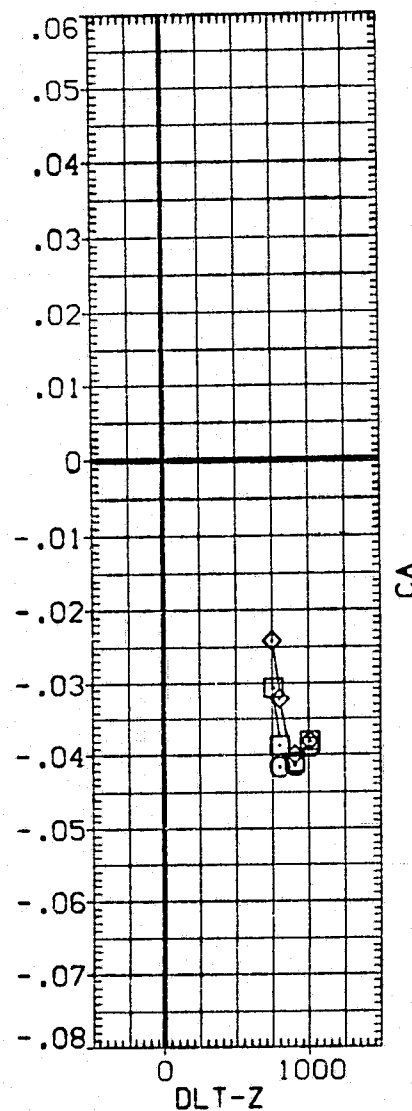
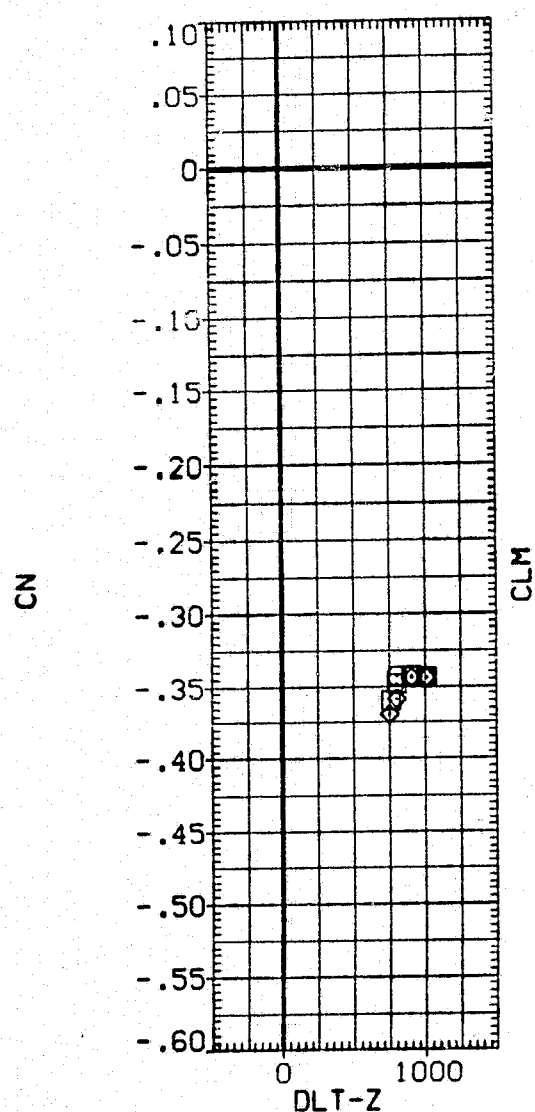


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO07)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.447	.000	DLTALF	-20.000
□	200.480	BETA	MACH	5.930
◇	400.400	DLTBT	ELEVON	.000
		AILRON		
		GRID	26.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

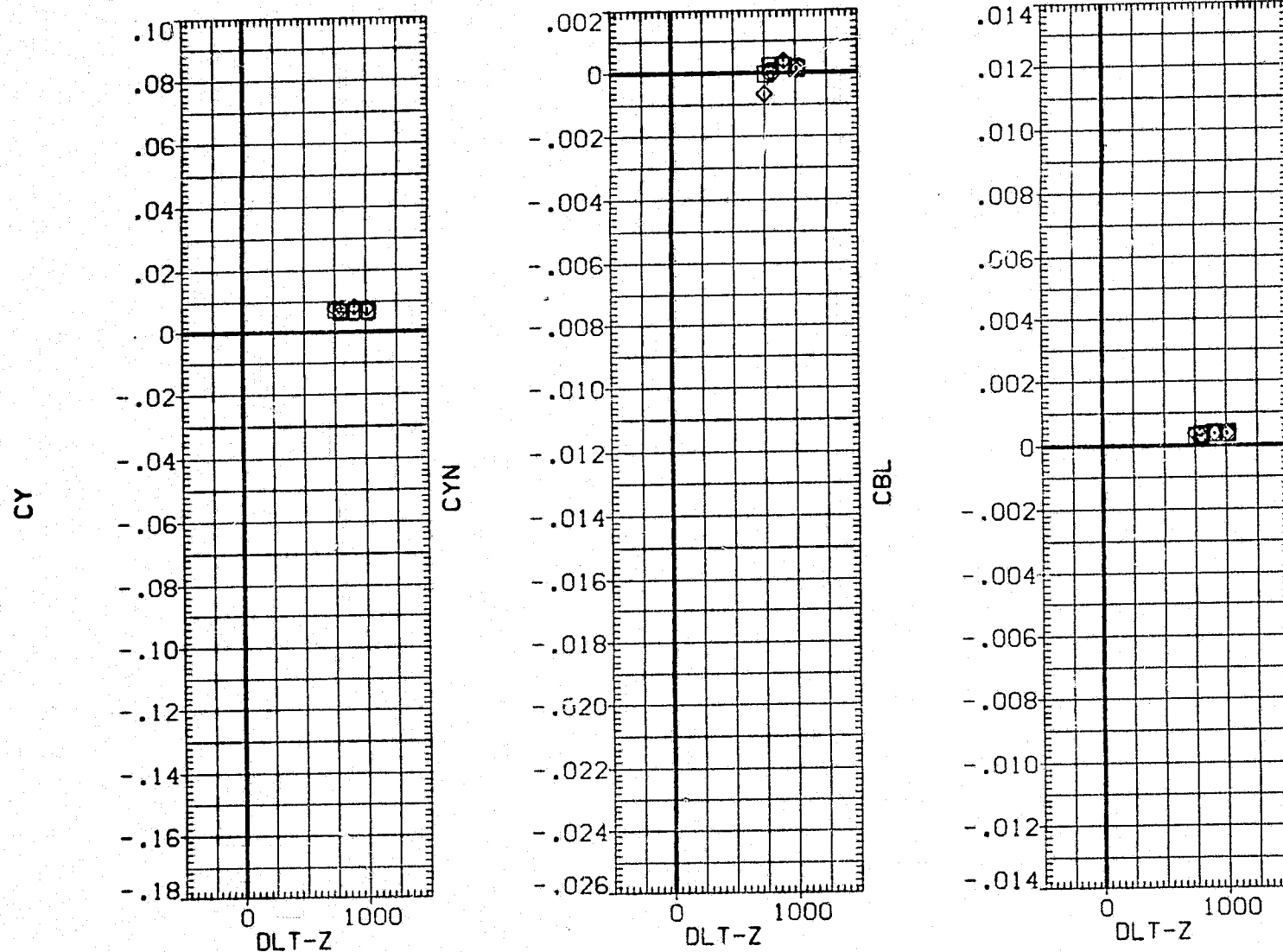


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO08)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.568	.000	ALPHA	.000
□	200.630	3.000	DLTALF	.000
		.000	MACH	5.930
		.000	ELEVON	.000
		3.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

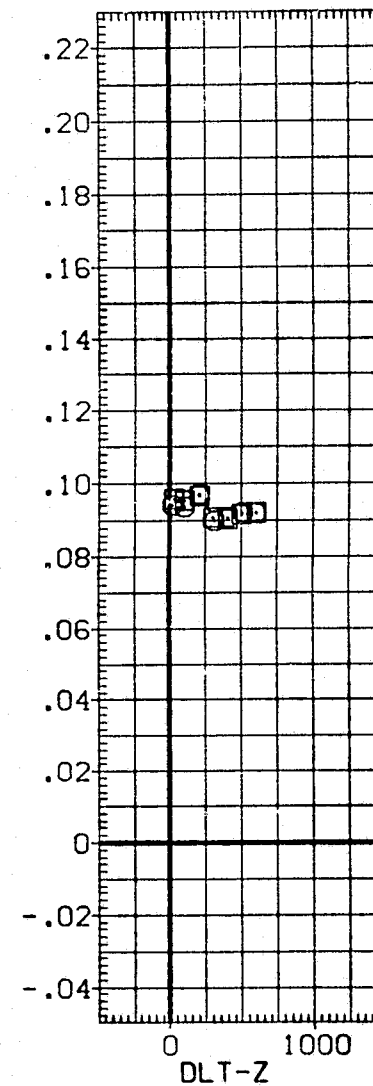
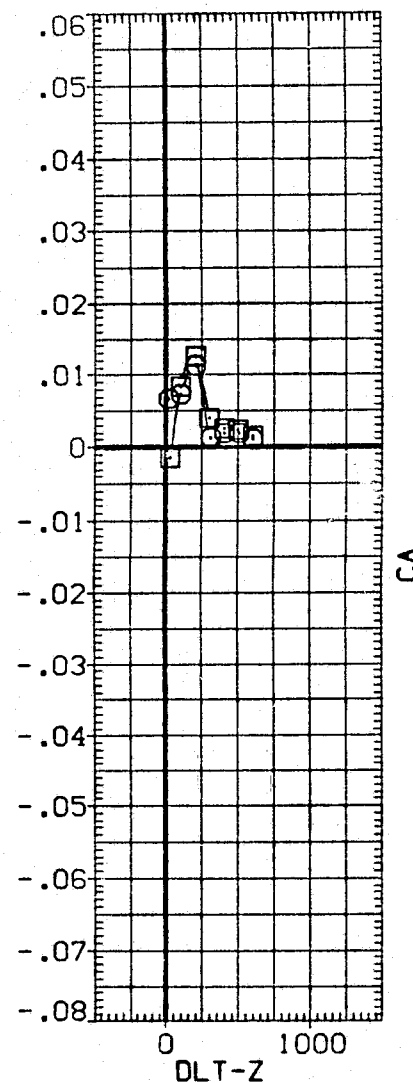
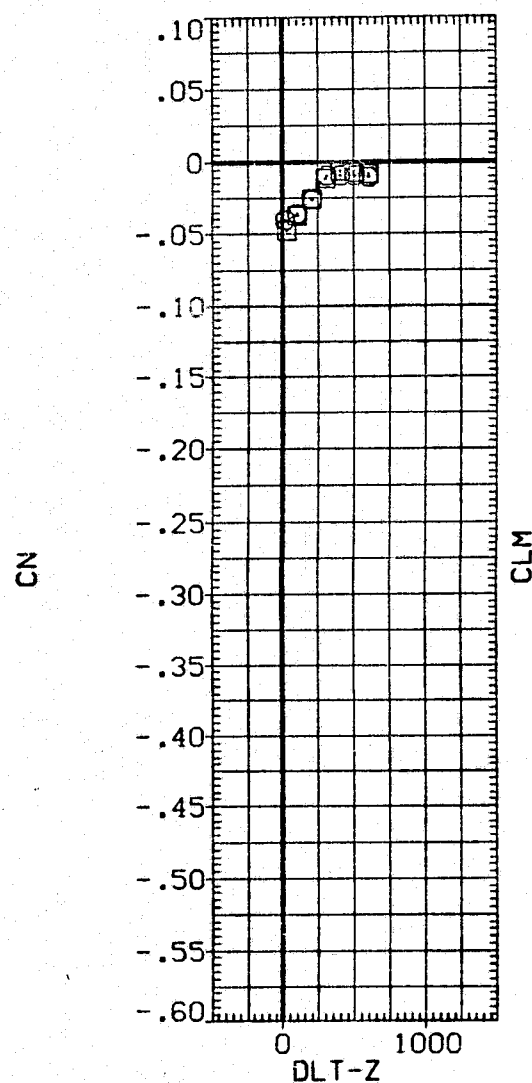


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO08)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.568		.000	.000	.000	.000
□	200.630		3.000	.000	5.930	.000
			.000			
			.000			
			3.000			

REFERENCE INFORMATION		
SREF	2630.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

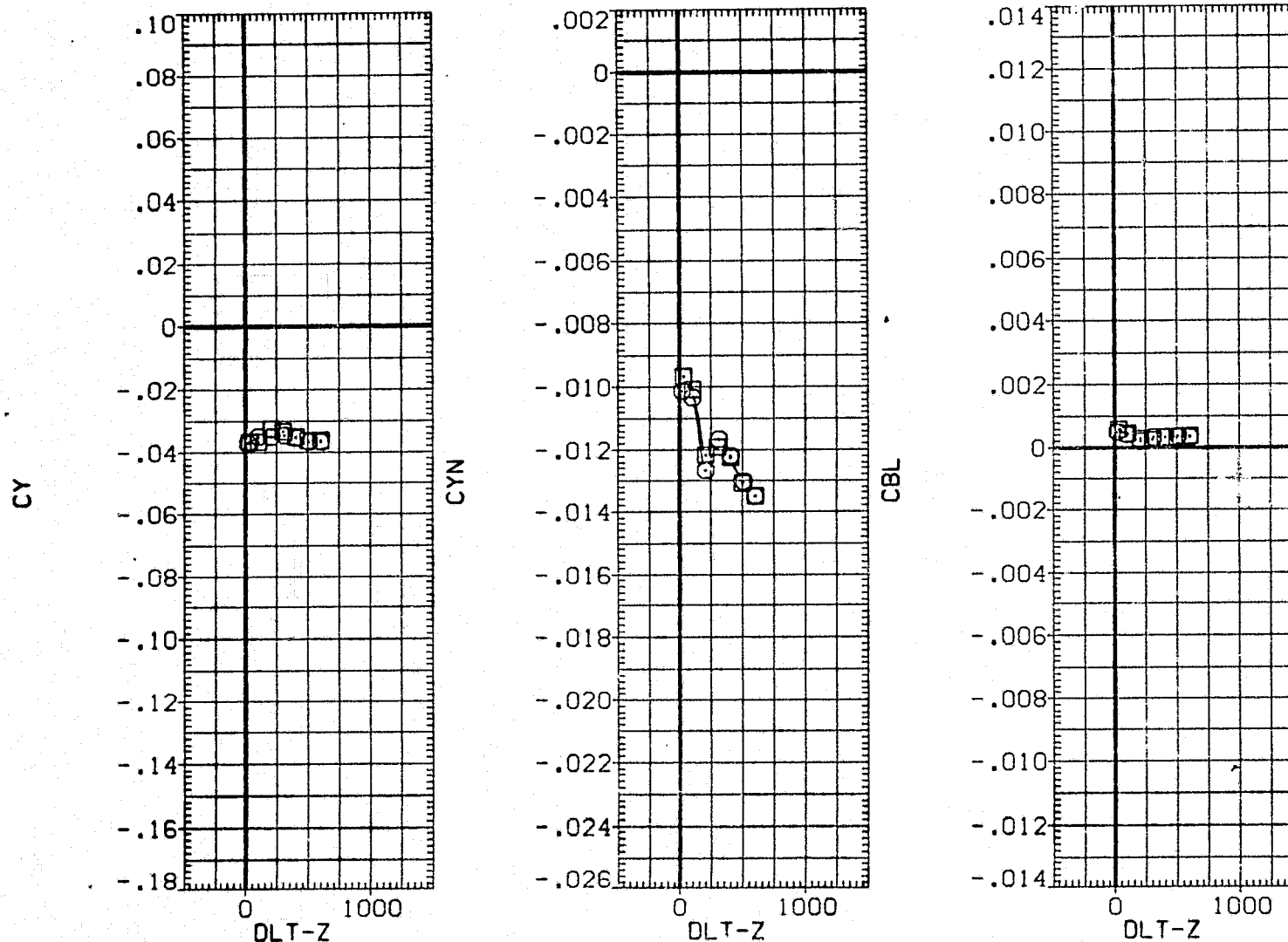


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO09)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.627	.000	DLTALF	.000
□	200.510	3.000	MACH	-5.000
		.000	ELEVON	5.930
		.000		.000
		3.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

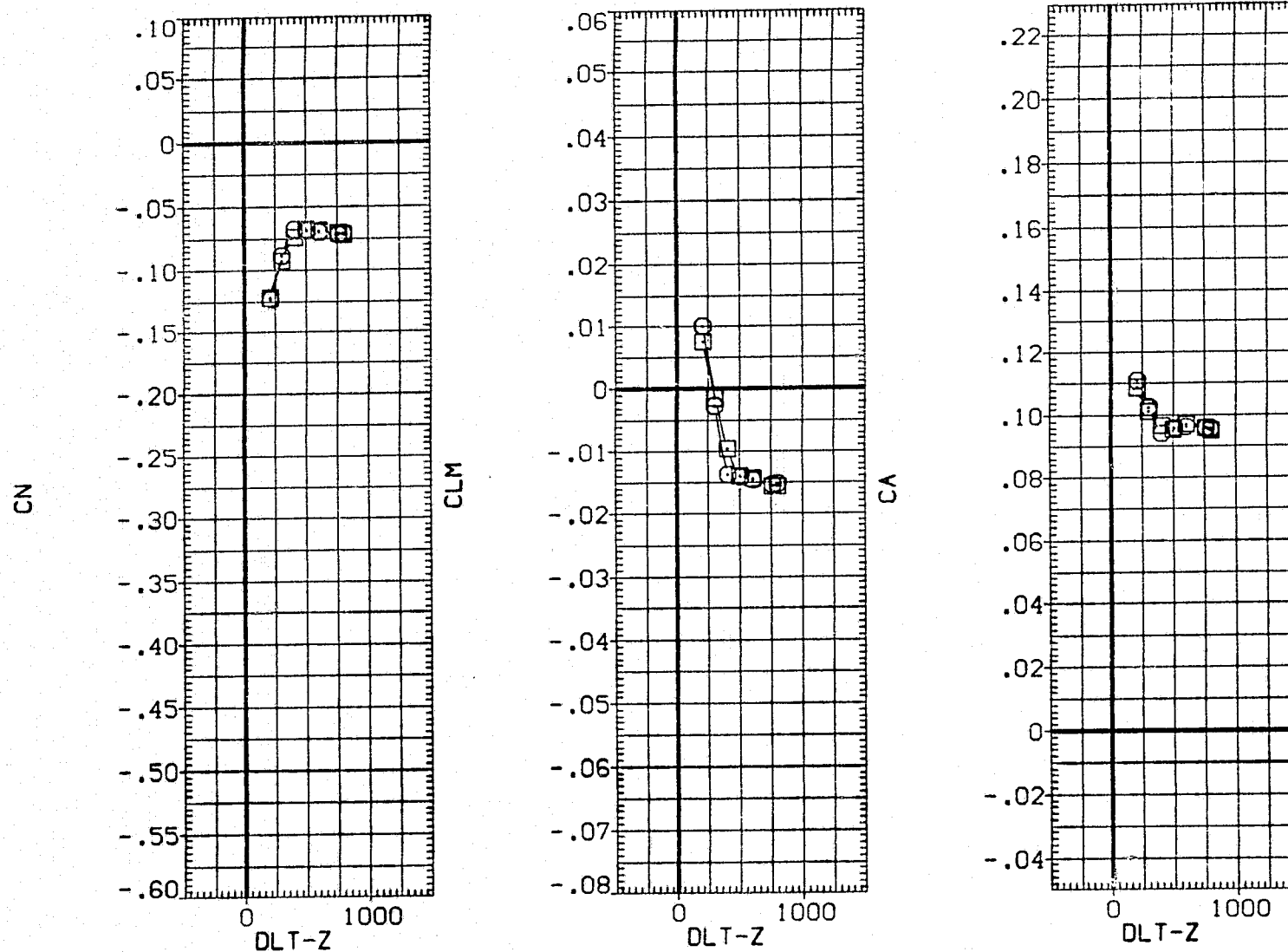


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO09)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.627		.000	-5.000	5.930	.000
□	200.510		3.000			
		DLTBT	.000			
		ATLRON	.000			
		GRID	3.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

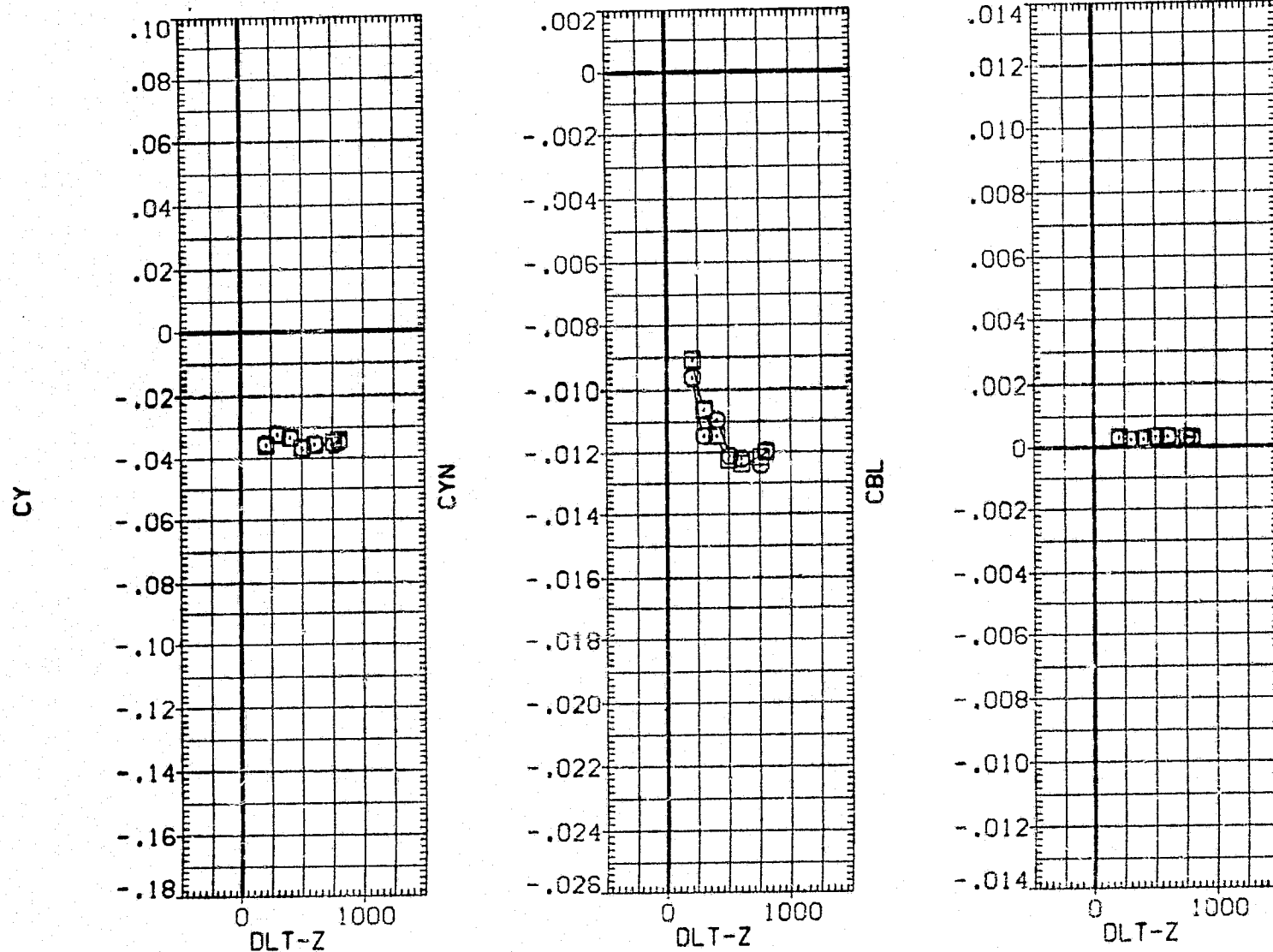


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO10)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.557	200.450	.000	-10.000
□	.557	200.450	3.000	5.930
◇	.557	200.450	.000	.000
	DLTBT	AILRON	GRID	ELEVON
	.000	.000	3.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
ZMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

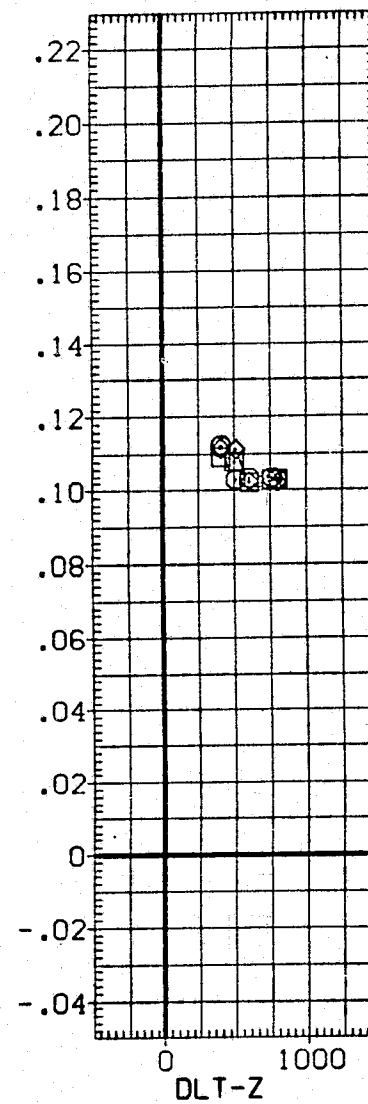
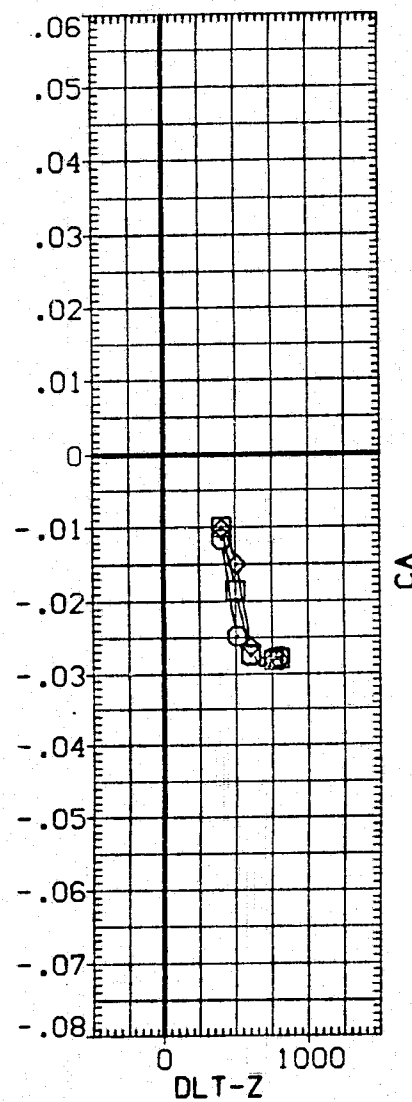
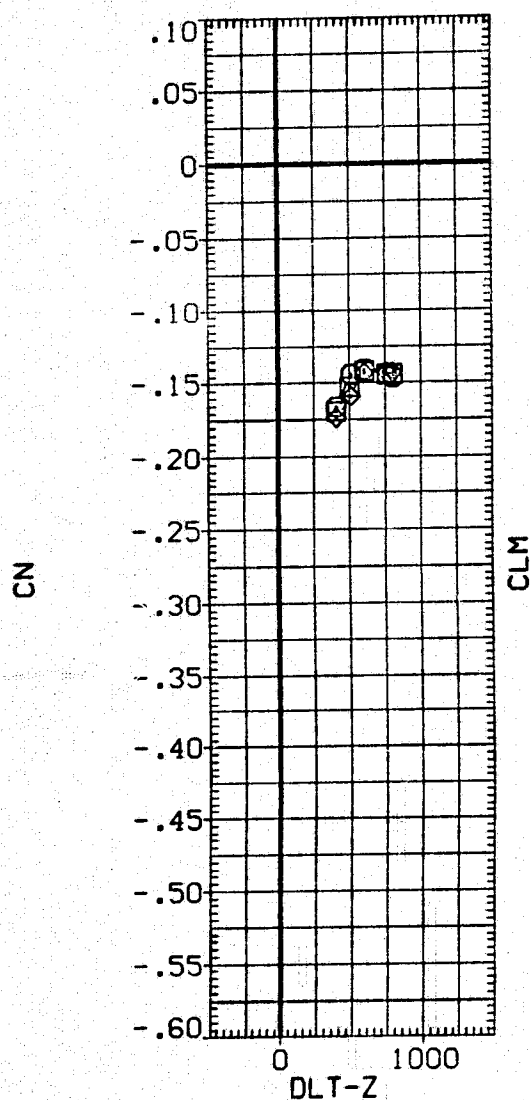


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO10)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.557	DLT-Y	.000	ALPHA	.000
○	200.450	BETA	3.000	DLTALF	-10.000
□	400.470	DLTBTA	.000	MACH	5.930
◇		AILRON	.000	ELEVON	.000
		GRID	3.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

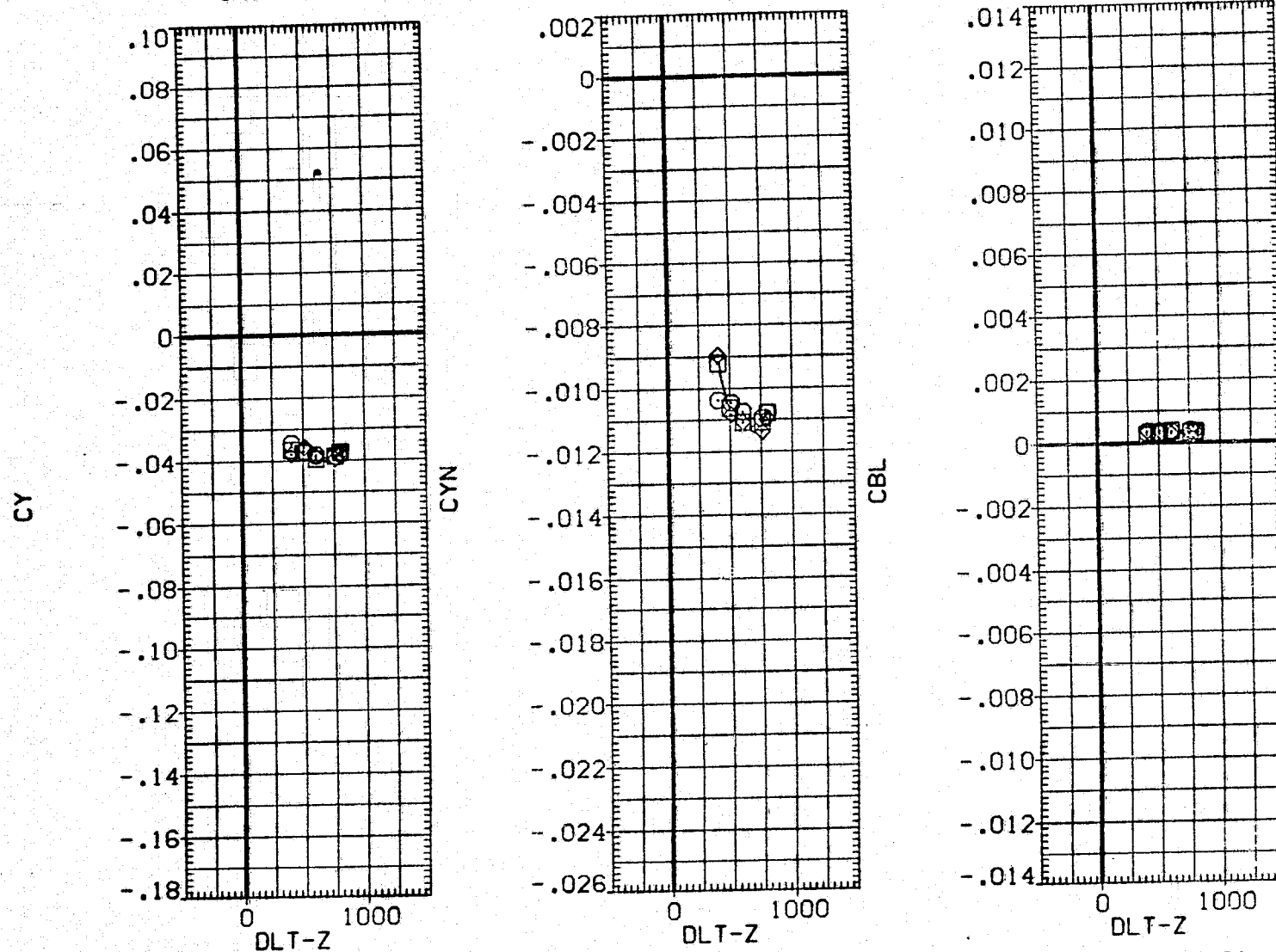


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO11)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.547	BETA	.000	.000
□	200.490	DLTBT	3.000	-15.000
◇	400.480	AIRLON	.000	5.930
		GRID	3.000	ELEVON
				.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

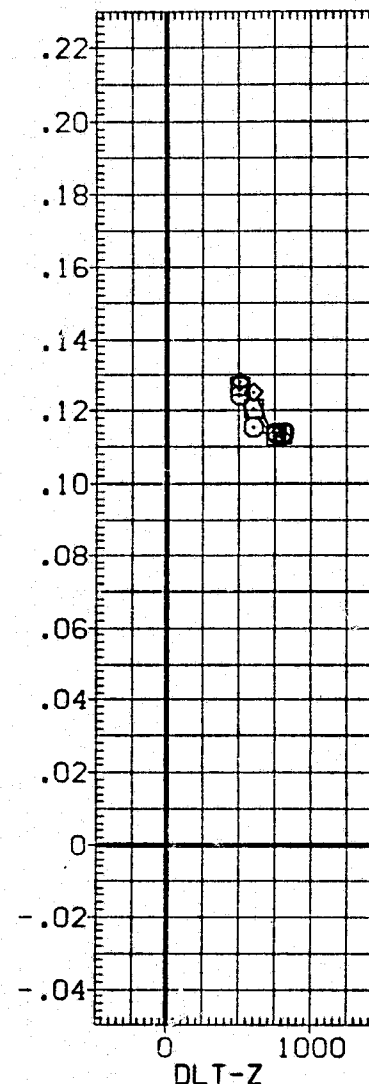
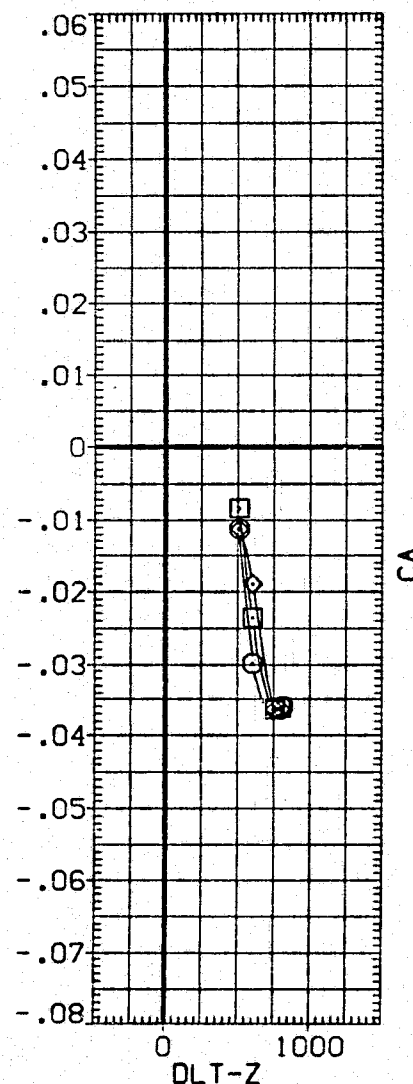
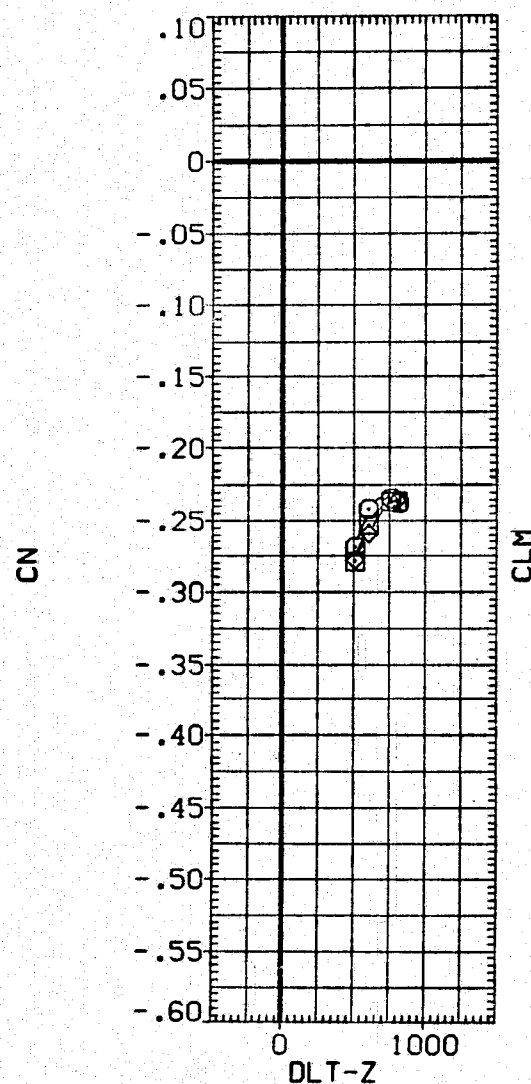


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
○	.547	BETA	.000	.000	-15.000
□	200.490	DLTBT	3.000	MACH	5.930
◇	400.480	AILRON	.000	ELEVON	.000
		GRID	3.000		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

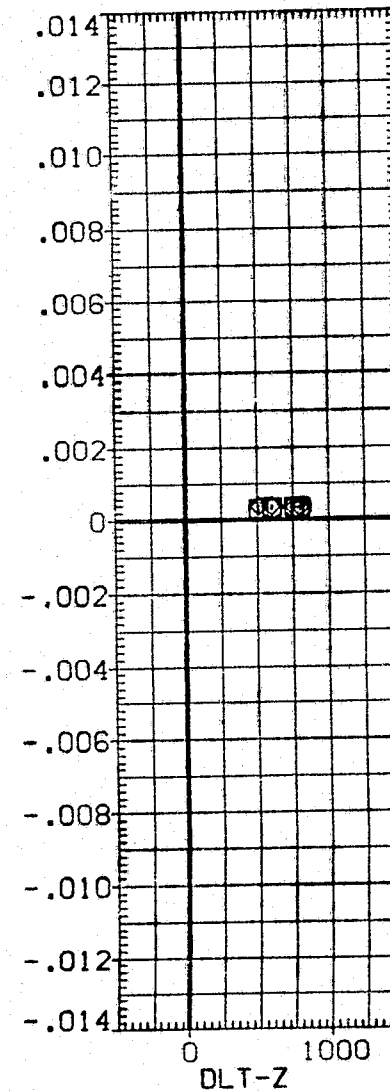
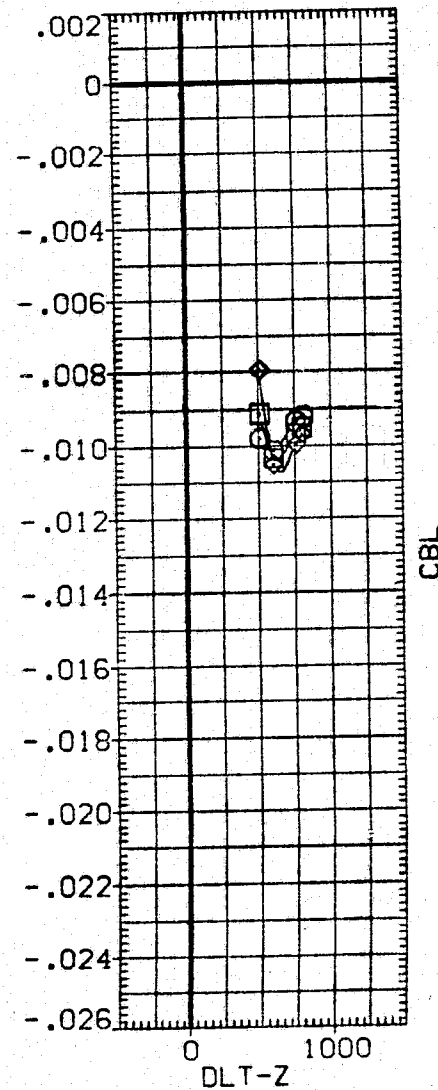
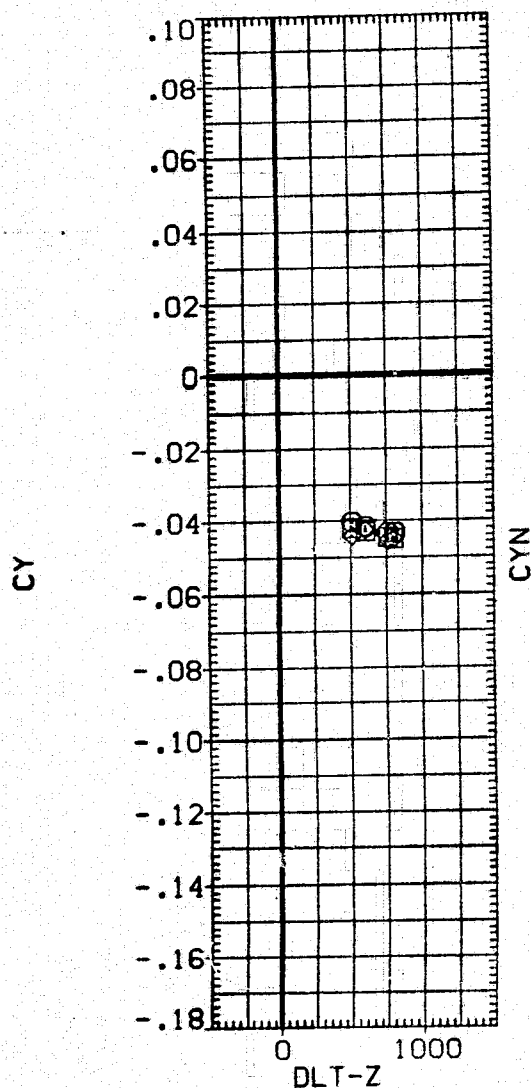


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO12)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.689	BETA	.000	ALPHA
		DLTBT	3.000	DLTALF
		AILRON	.000	MACH
		GRID	.000	ELEVON
			3.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

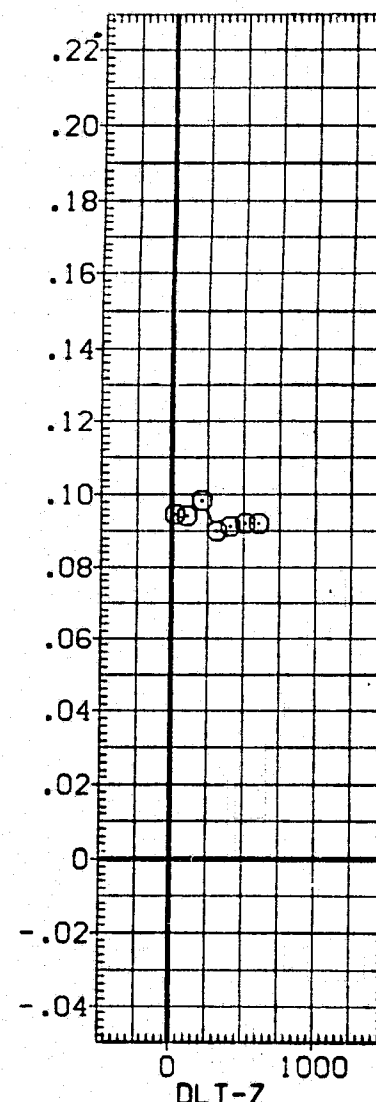
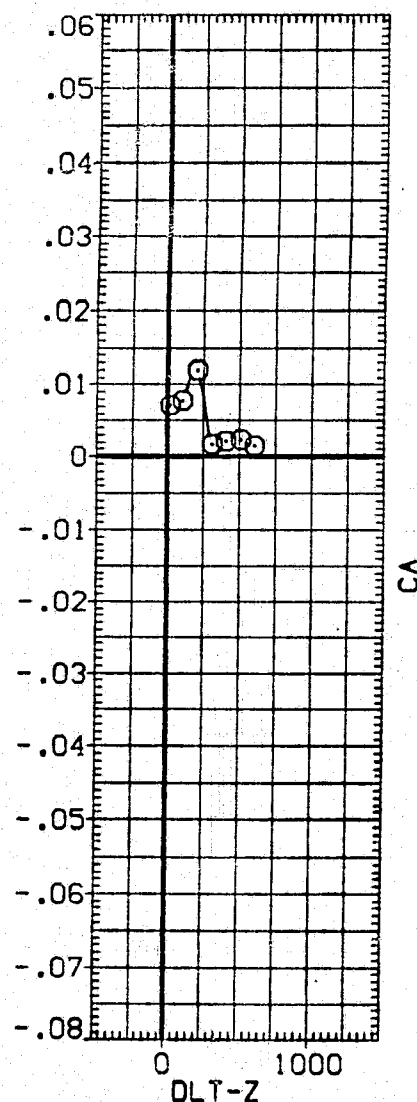
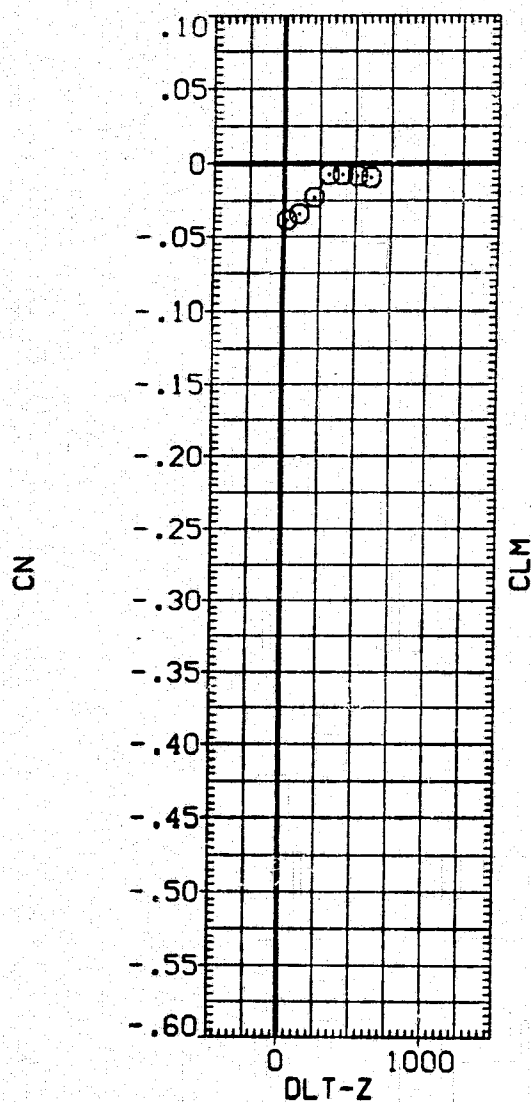


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO12)

SYMBOL	DLT-X	DLT-Y	BETA	DLTBT	AILRON	GRID	PARAMETRIC VALUES	ALPHA	DLTALF	MACH	ELEVON
○	.689	.000	3.000	.000	.000	3.000		.000	.000	5.930	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

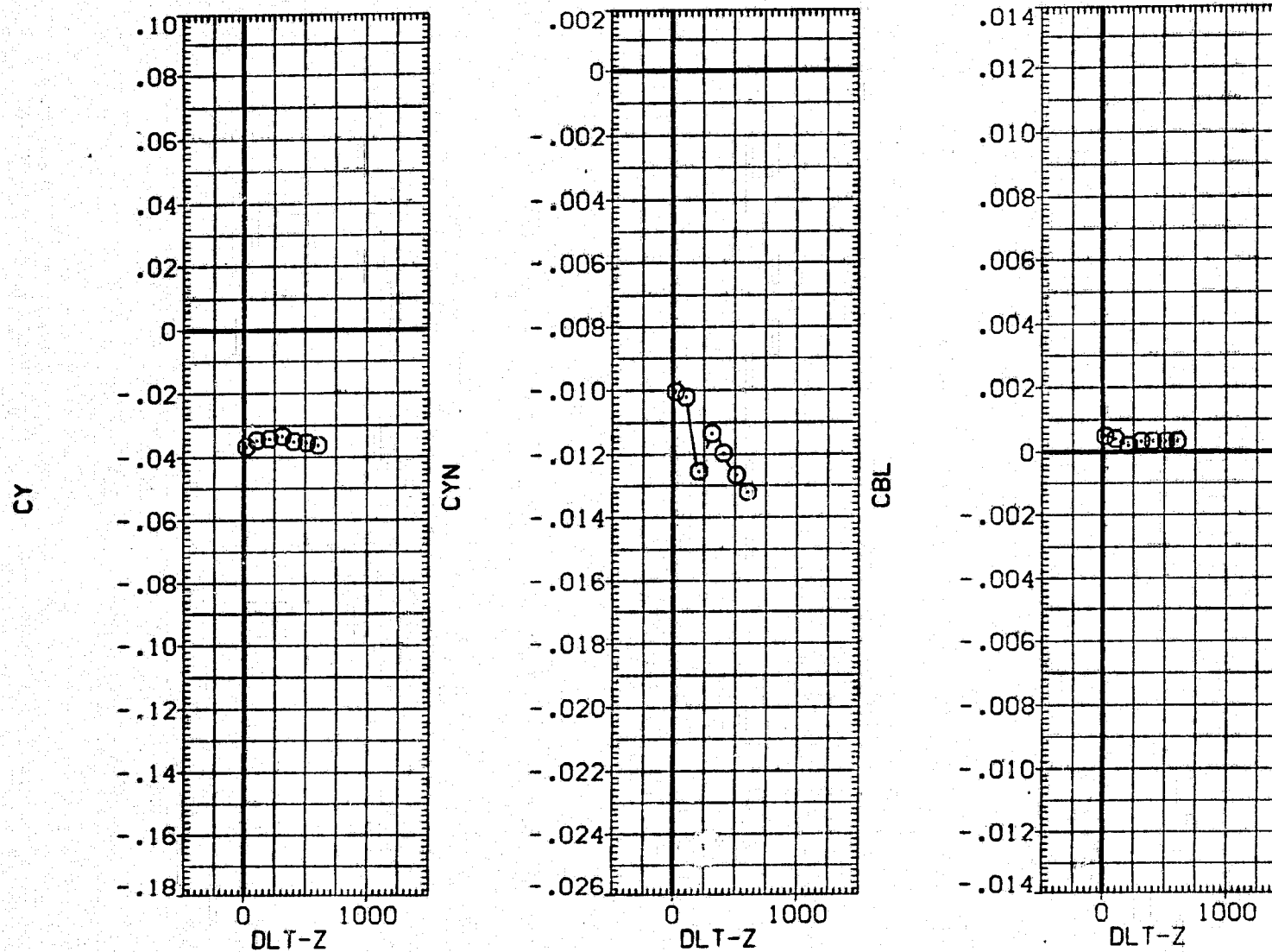


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO13)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
○	.584	.000	ALPHA	.000	
□	200.490	BETA	3.000	DLTALF	.000
◇	400.530	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	3.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

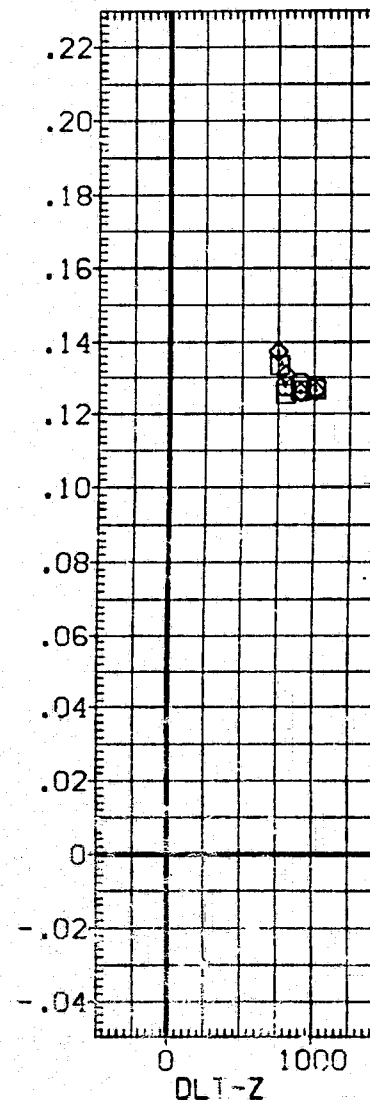
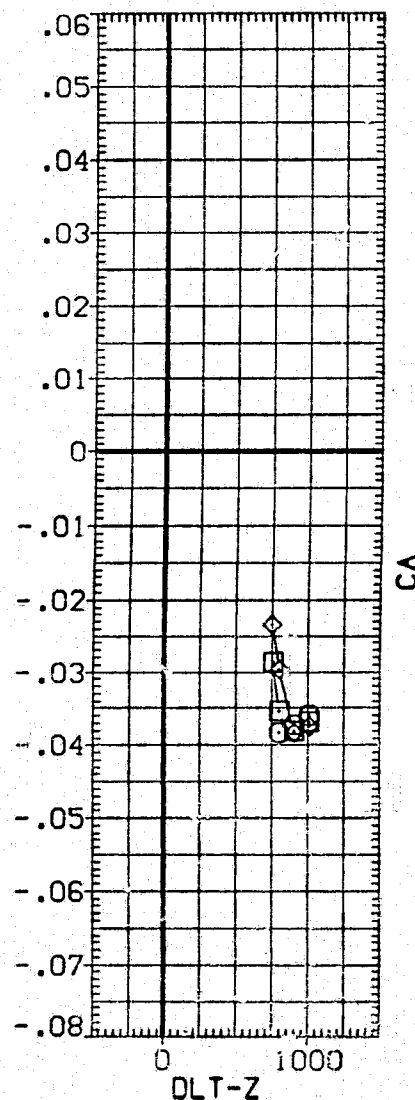
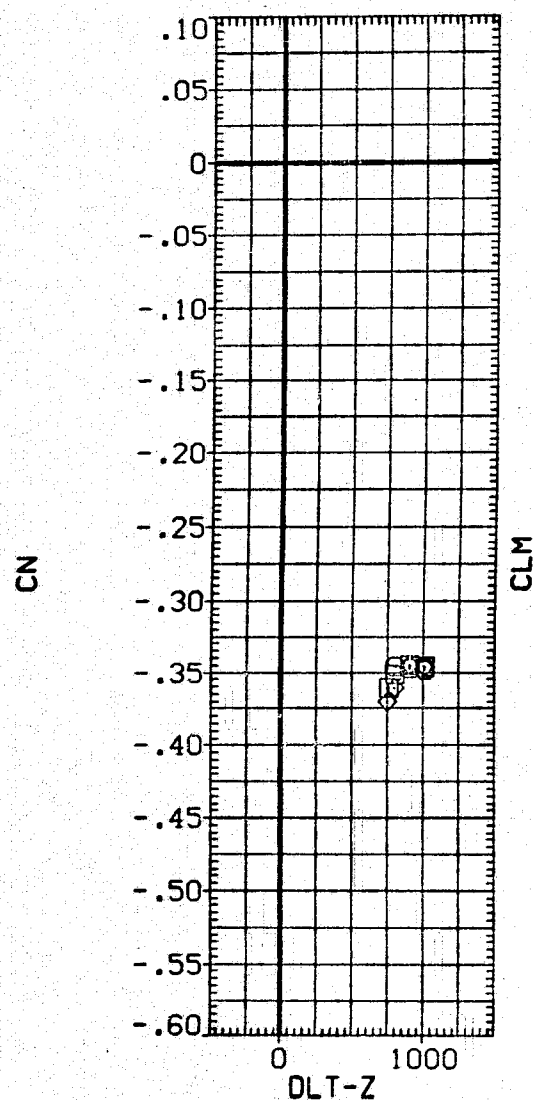


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO13)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.584		.000	.000	
□	200.490	BETA	3.000	DLTALF	.000
◇	400.530	DLTBTA	.000	MACH	5.930
		ATLRON	.000	ELEVON	.000
		GRID	3.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

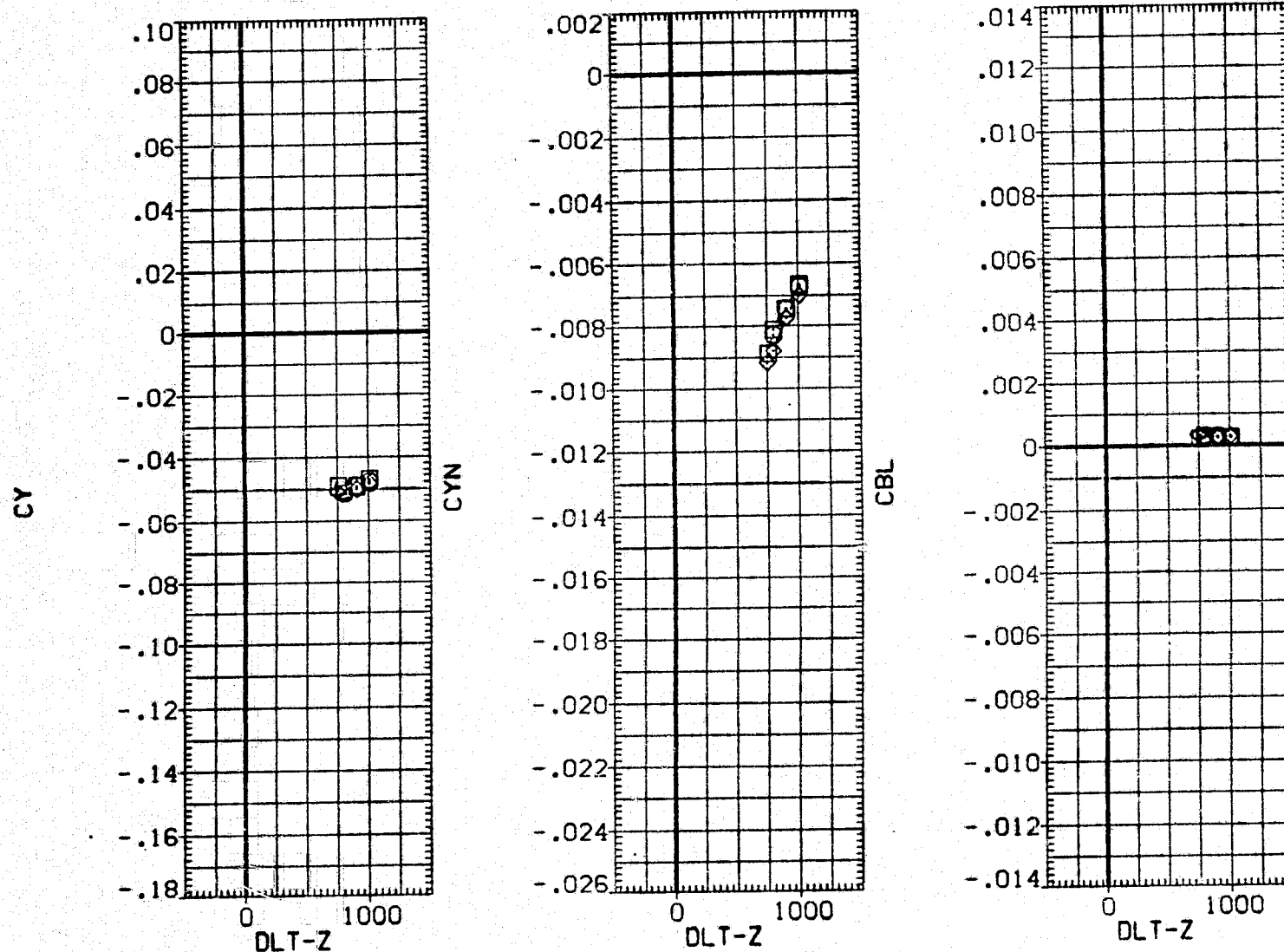


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO14)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.505	.000	ALPHA	5.000
□	200.600	.000	DLTALF	.000
◇	400.530	.000	MACH	5.930
		.000	ELEVON	.000
		GRID	5.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

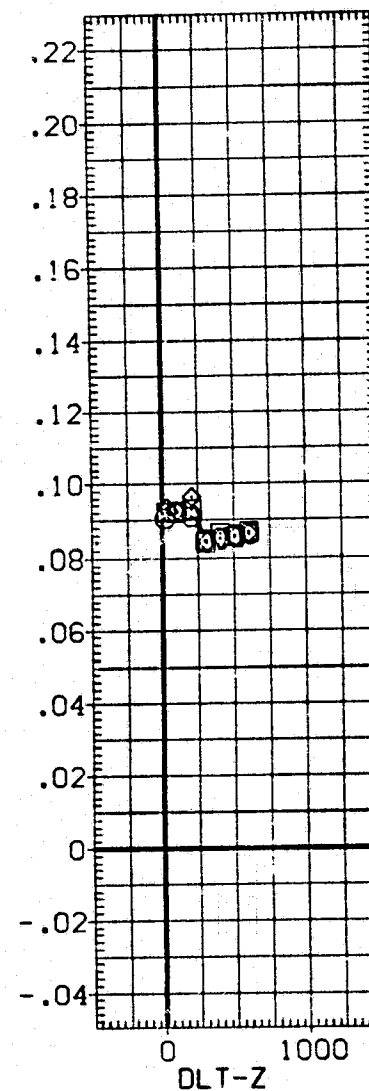
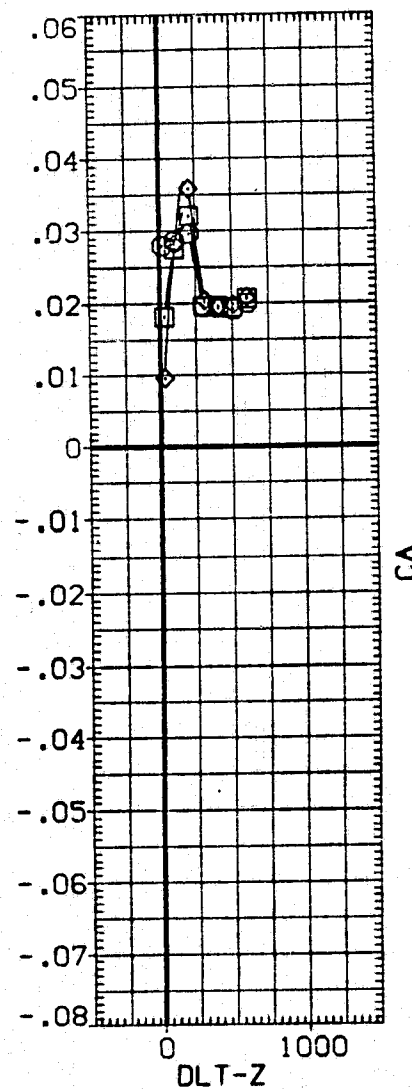
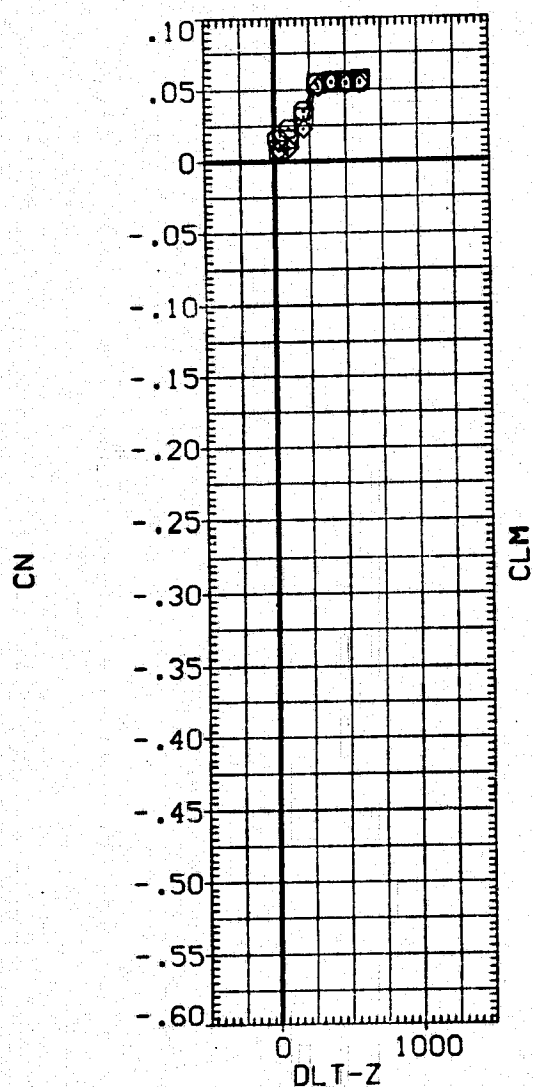


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO14)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.505	BETA	.000	.000
□	200.600	DLTBTA	.000	.000
◇	400.530	AILRON	.000	5.930
		GRID	5.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

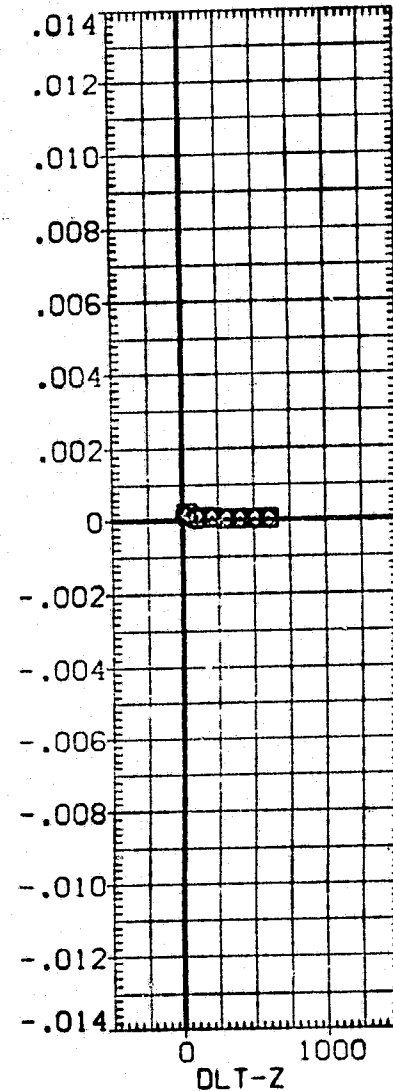
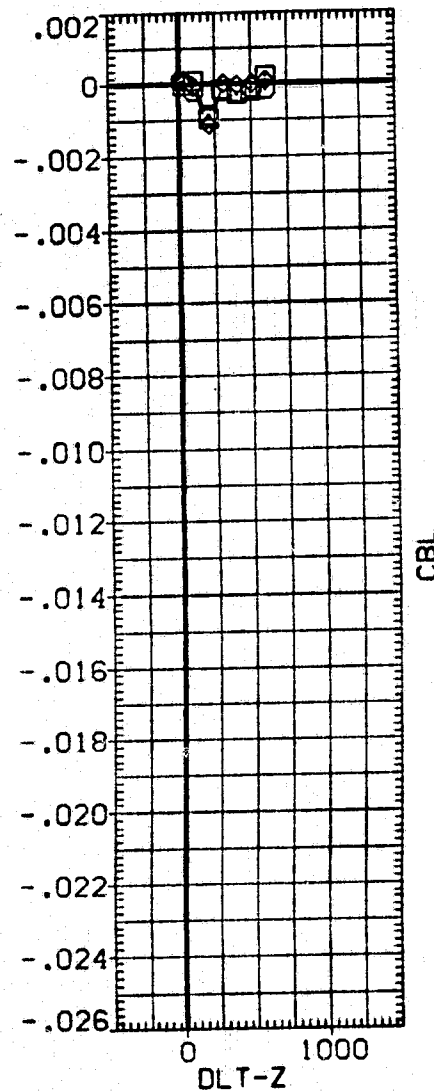
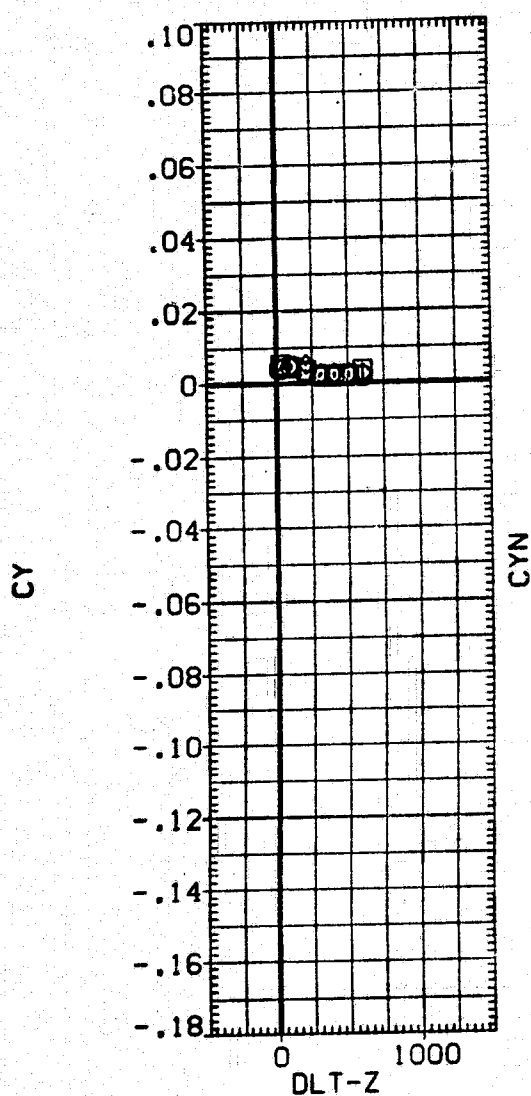


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO15)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.596	.000	BETA	.000	-5.000
□	200.590	.000	DLTBT	.000	5.930
		.000	AILRON	.000	.000
		5.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

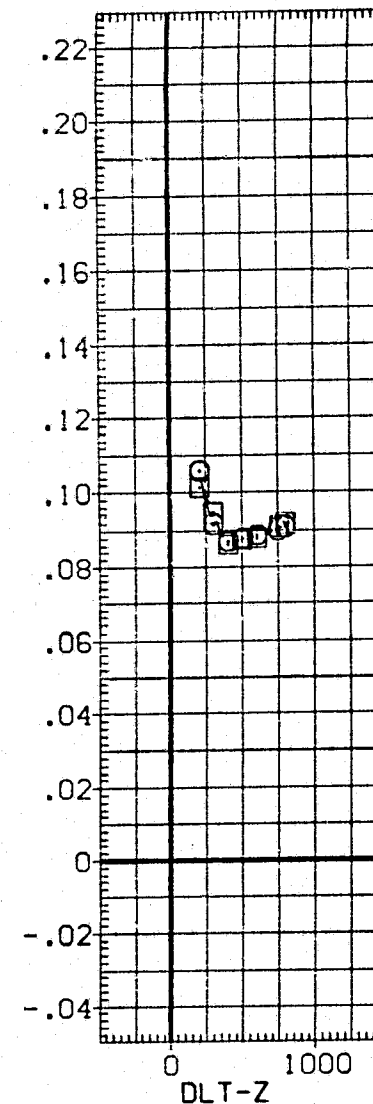
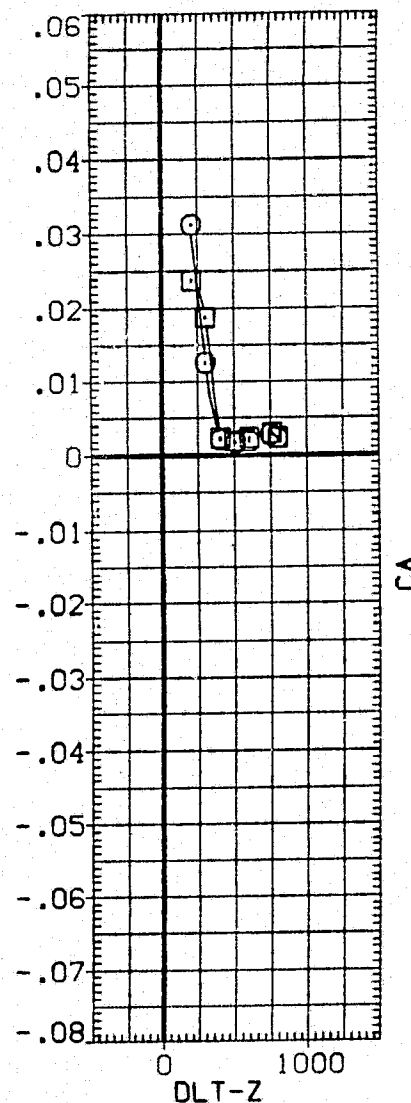
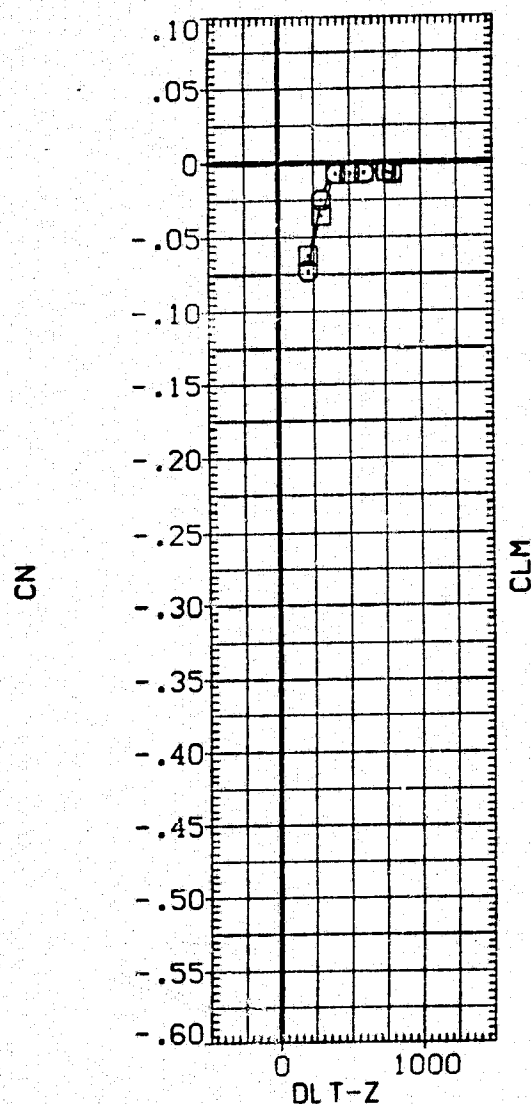


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO15)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
○	.596		ALPHA	5.000	
□	200.590	BETA	DLTALF	-5.000	
		DLTSTA	MACH	5.930	
		AILRON	ELEVON	.000	
		GRID		5.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

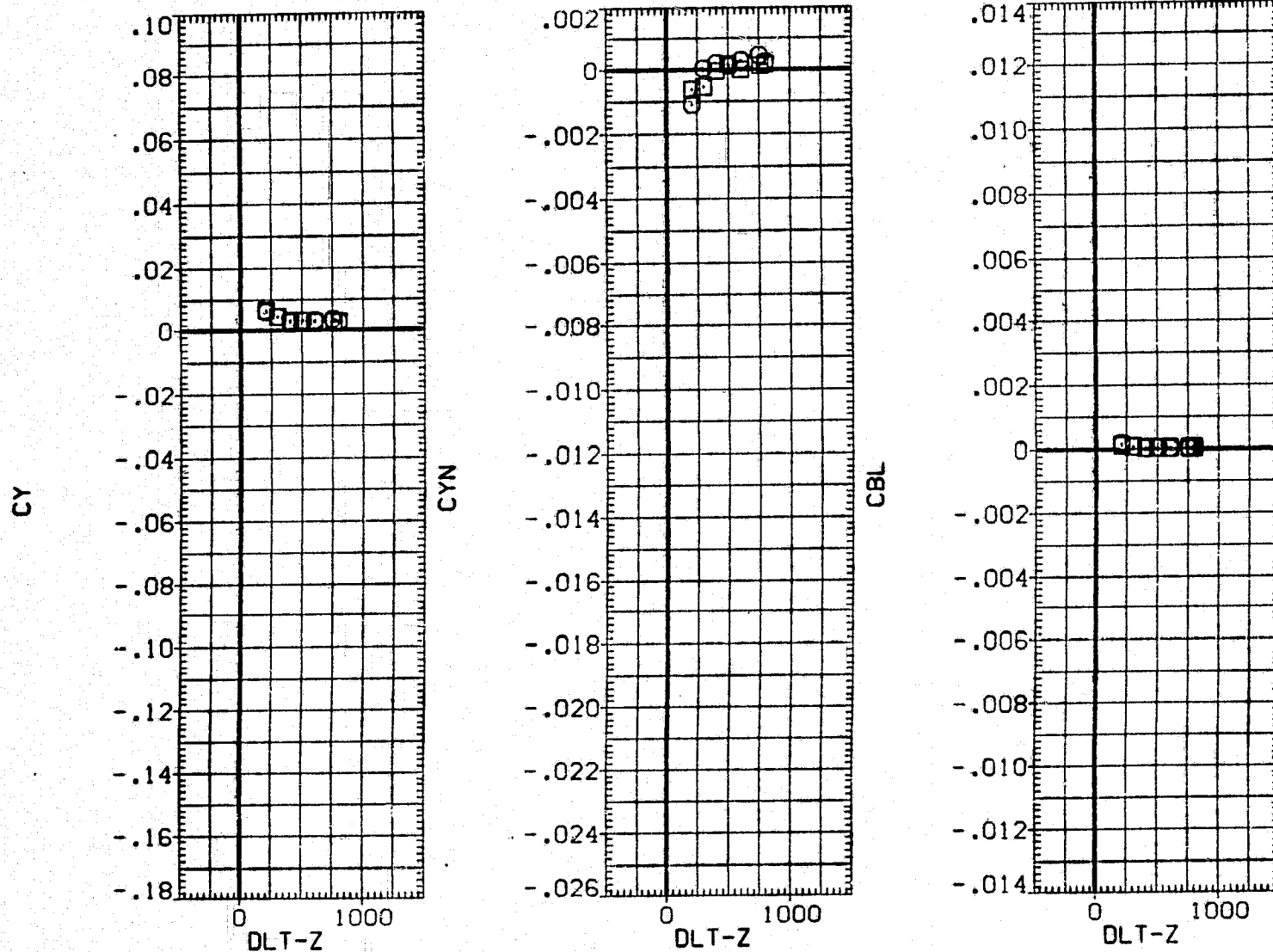


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO16)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
○	.443	.000	ALPHA	5.000	-10.000
□	200.480	.000	BETA		5.930
◇	400.520	.000	DLTBTA		.000
		.000	AILRON		
		5.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

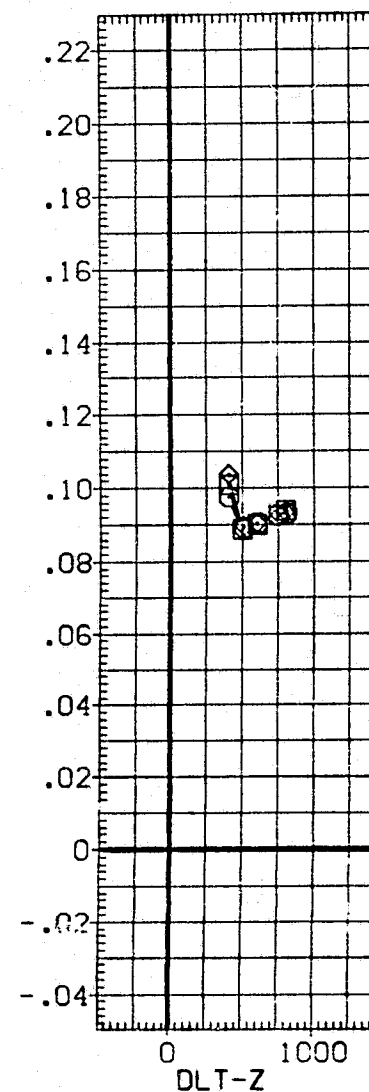
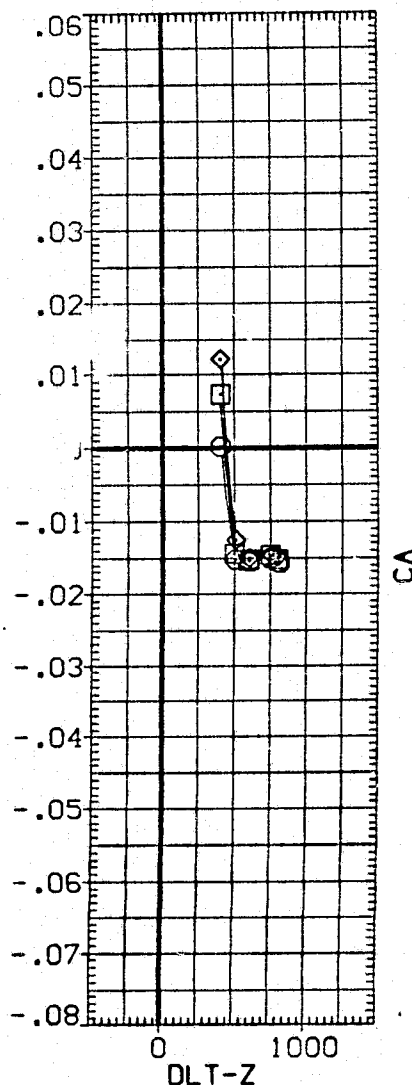
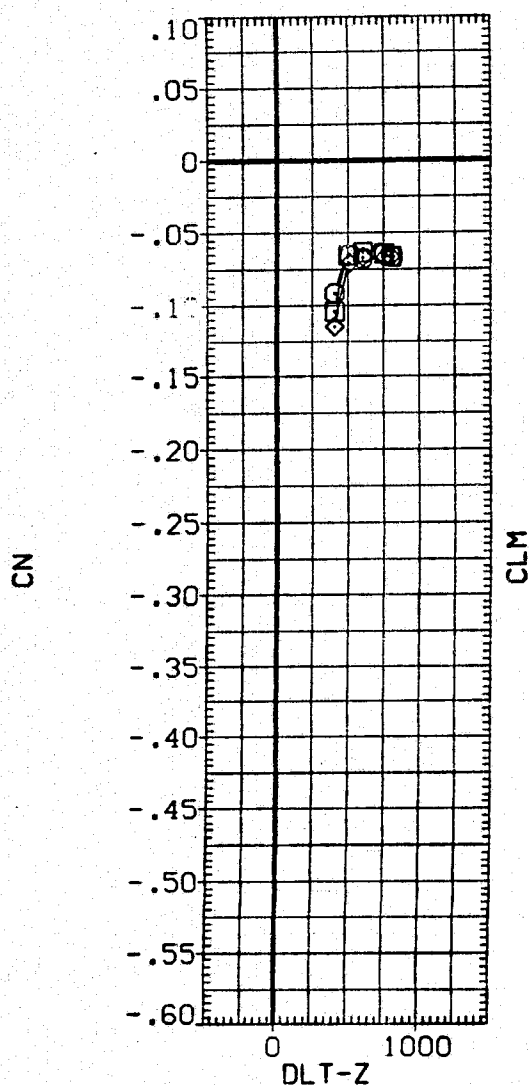


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=0).

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO16)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.443	BETA	.000	DLTALF	-10.000
□	200.480	DLTBYA	.000	MACH	5.930
◇	400.520	AILRON	.000	ELEVON	.000
		GRID	5.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

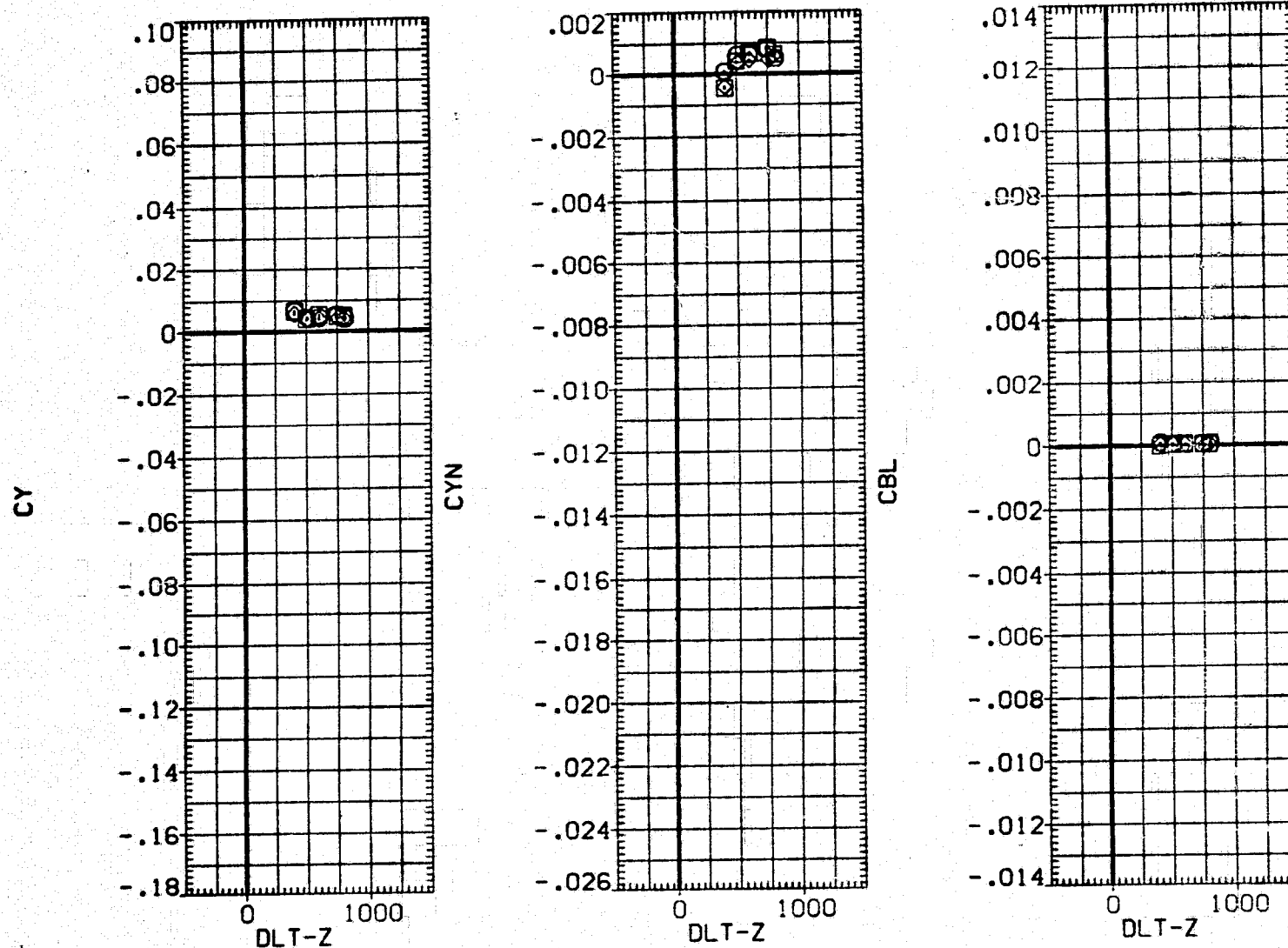


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO17)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.497		.000	-15.000	5.930	.000
□	200.470		.000			
◇	400.420		.000			
		DLTBT	.000			
		AILRON	.000			
		GRID	5.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

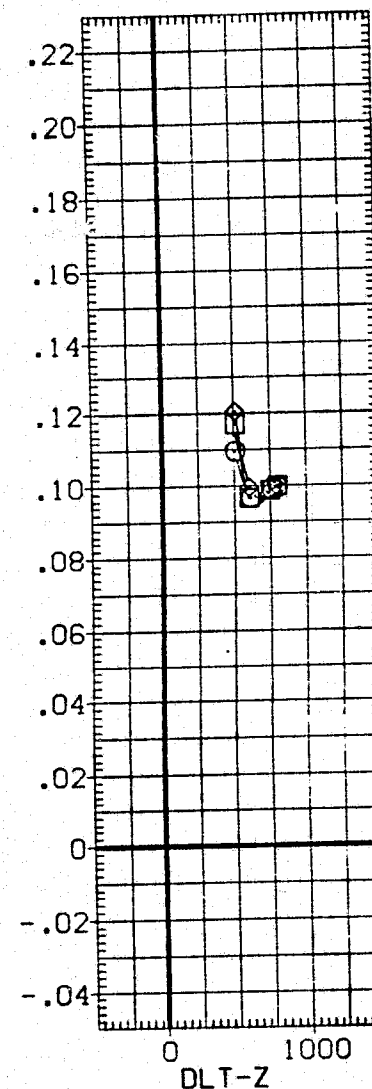
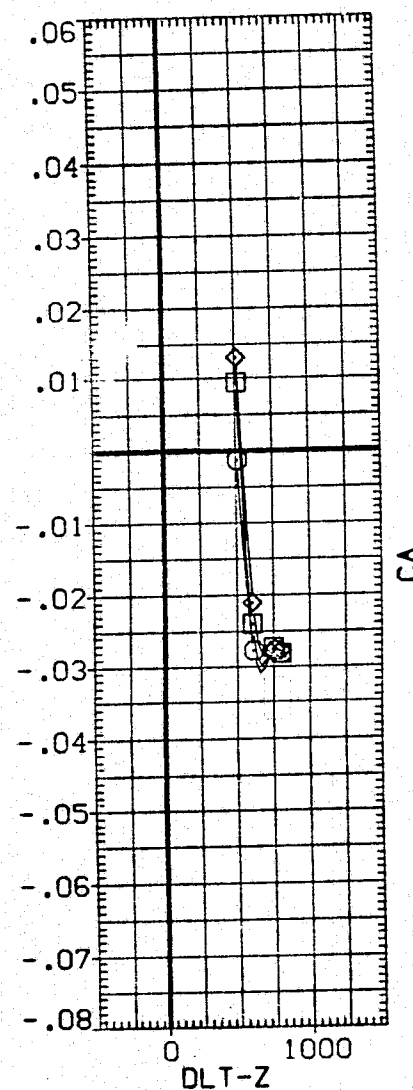
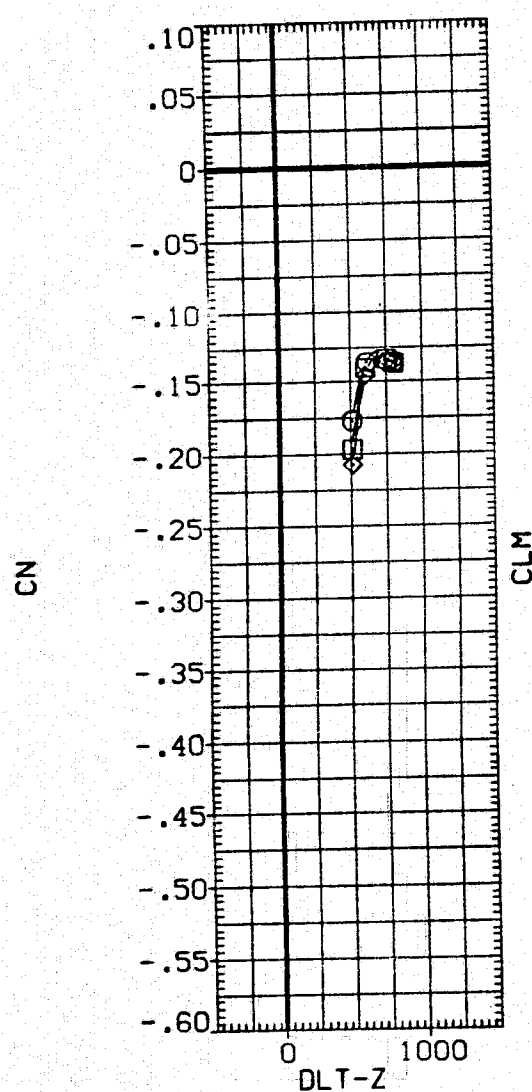


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO17)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.497	.000	ALPHA	5.000
□	200.470	BETA	.000	DLTALF -15.000
◇	400.420	DLTBTA	.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	5.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

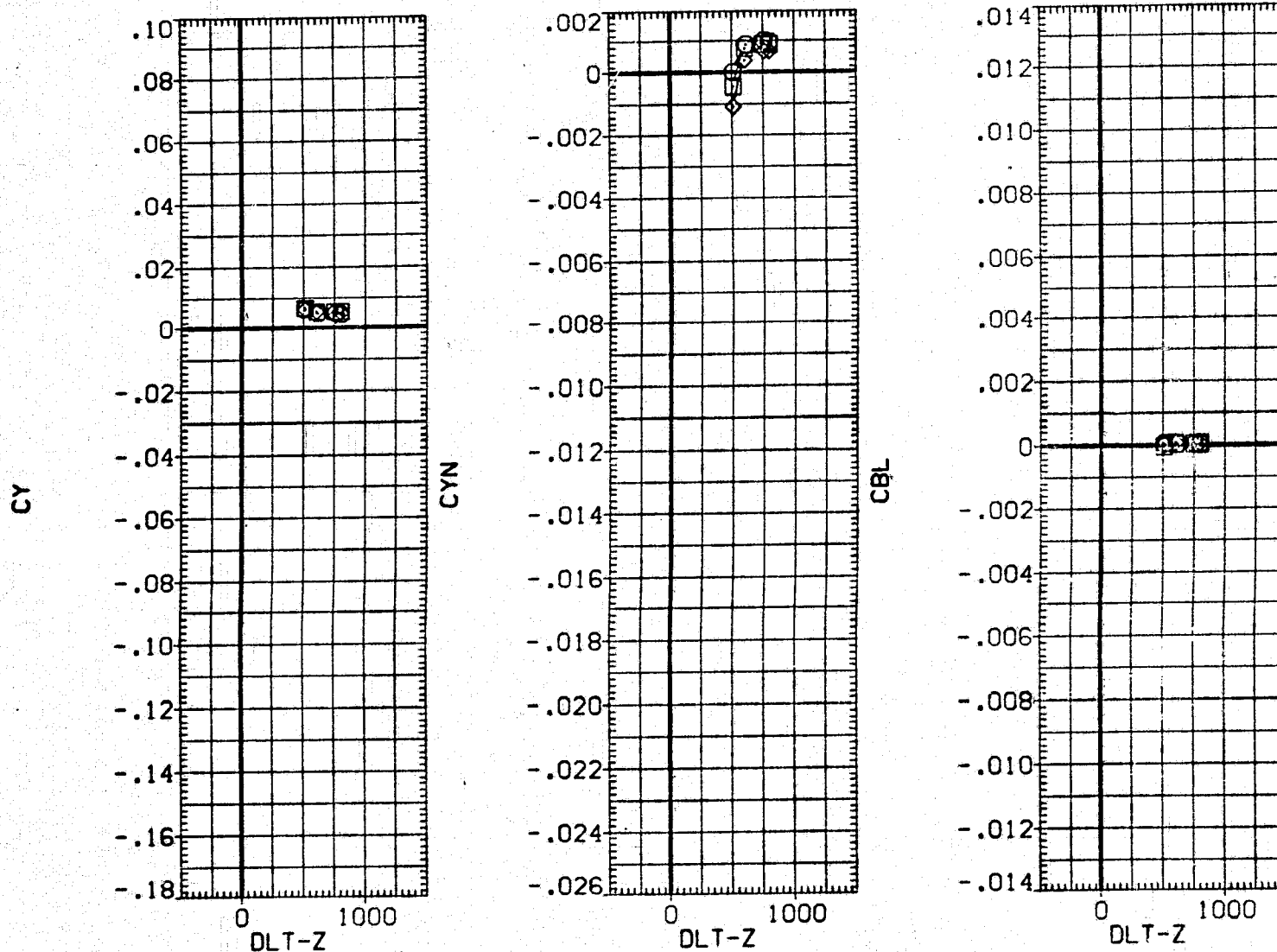


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO19)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.476	BETA	3.000	DLTALF	-20.000
□	200.380	DLTBTA	.000	MACH	5.930
◇	400.470	AILRON	.000	ELEVON	.000
		GRID	5.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

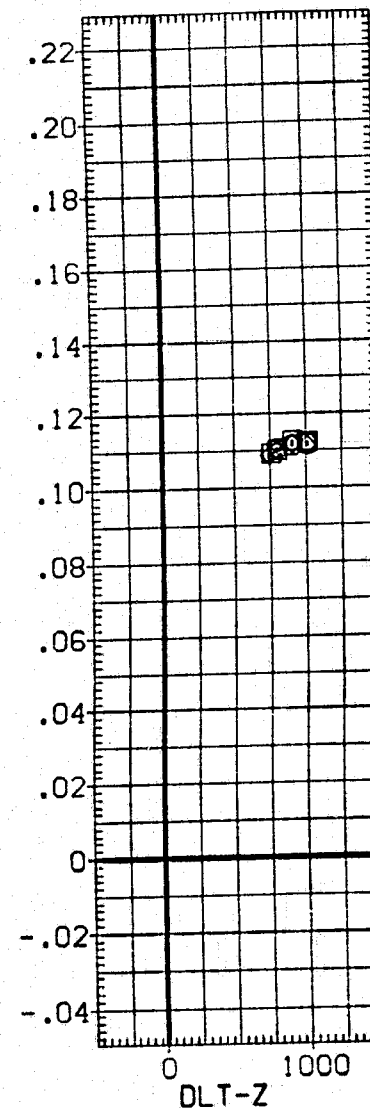
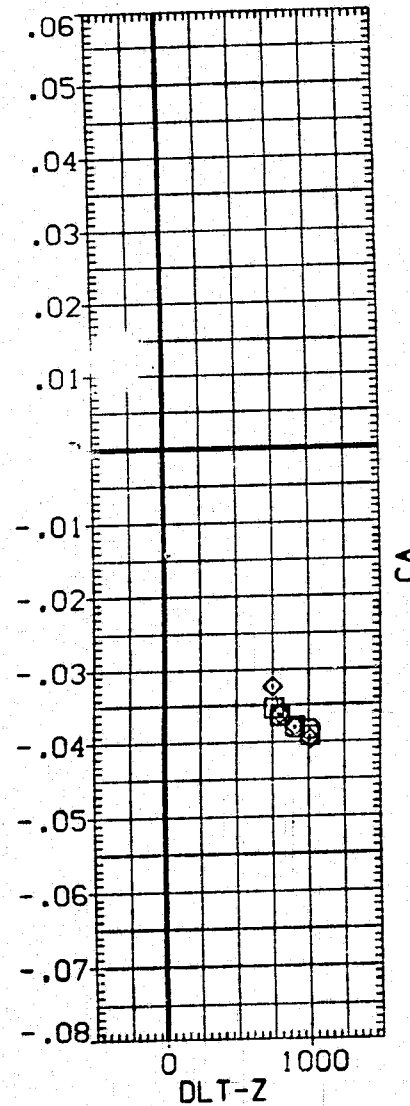
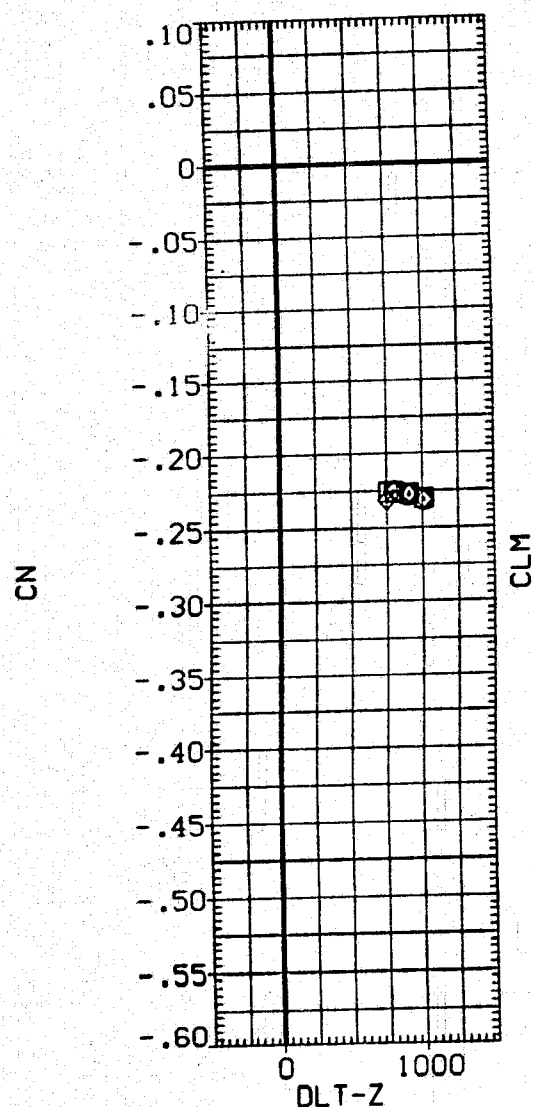


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO19)

SYMBOL
○
□
◇

DLT-X
.476
200.380
400.470

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES
.000
3.000
.000
.000
5.000
ALPHA
DLTALF
MACH
ELEVON

5.000
-20.000
5.930
.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

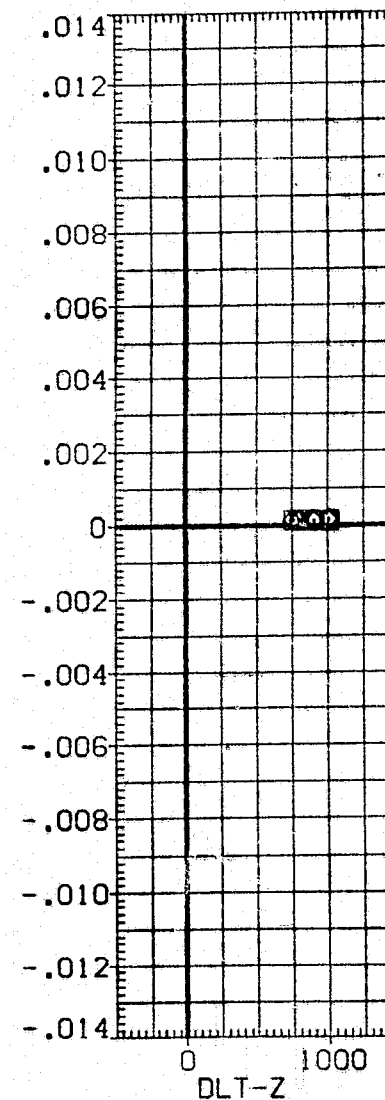
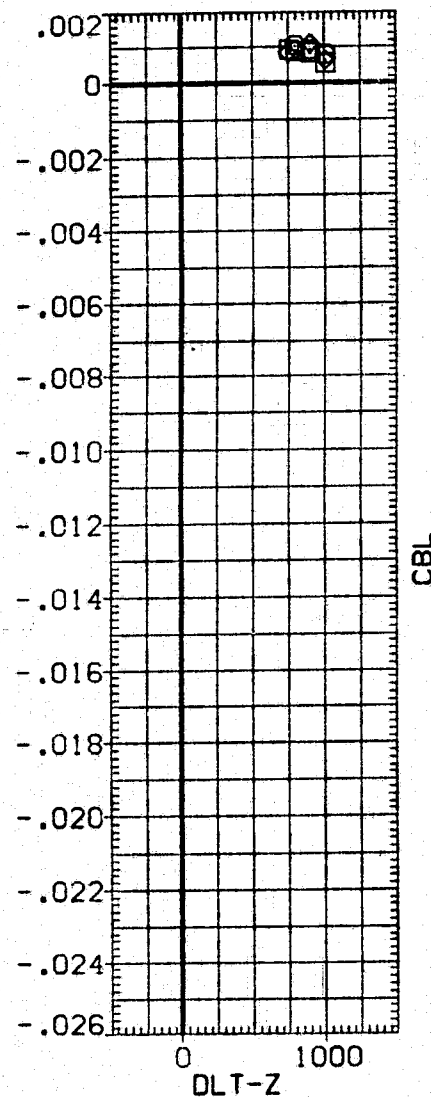
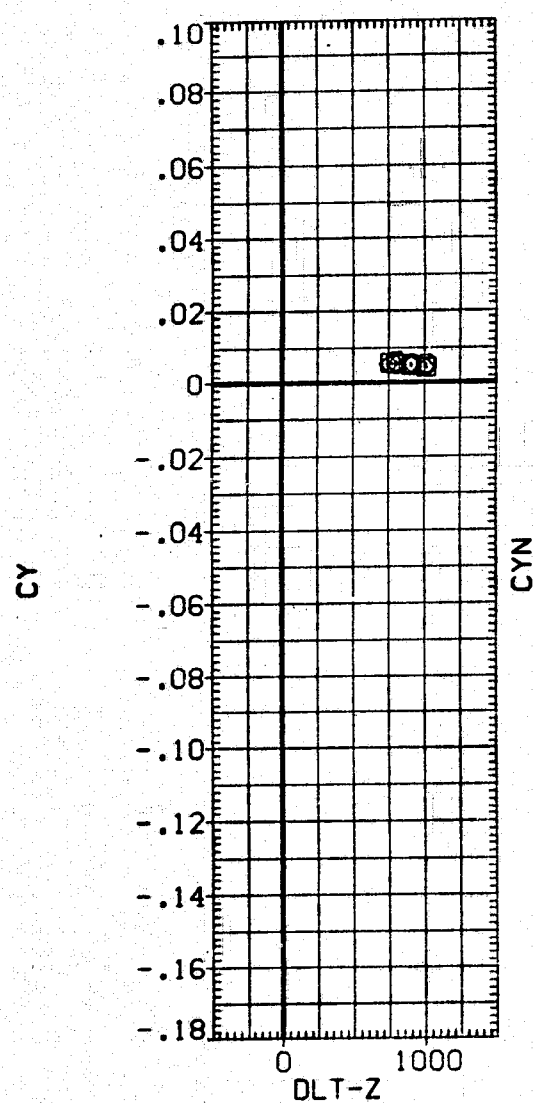


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO20)

SYMBOL		DLT-X	PARAMETRIC VALUES			
○		.564	DLT-Y	.000	ALPHA	5.000
□		200.620	BETA	3.000	DLTALF	.000
			DLTBTA	.000	MACH	5.930
			AILRON	.000	ELEVON	.000
			GRID	4.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

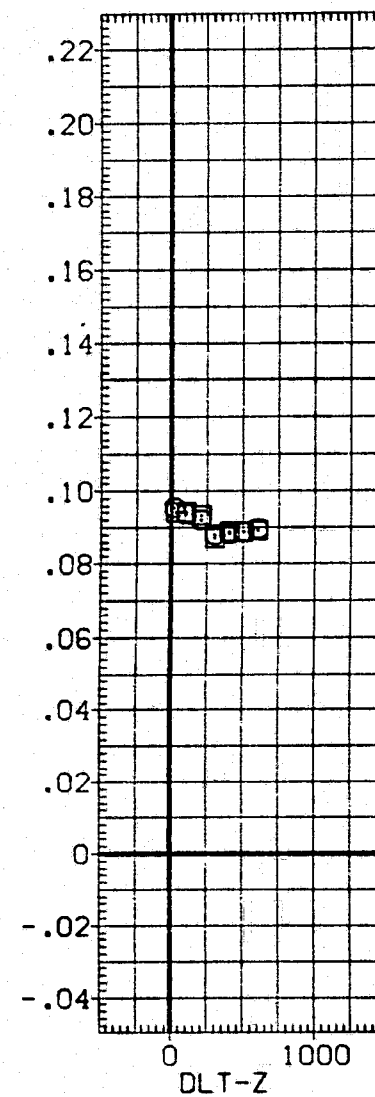
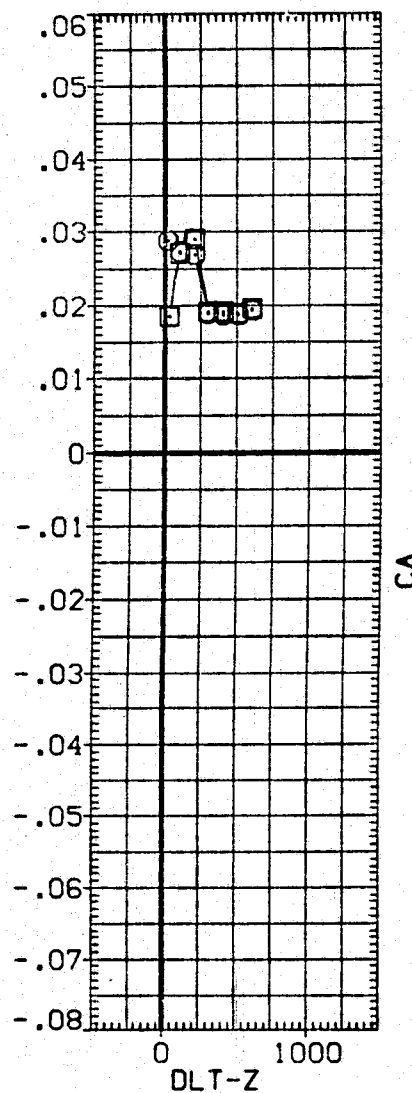
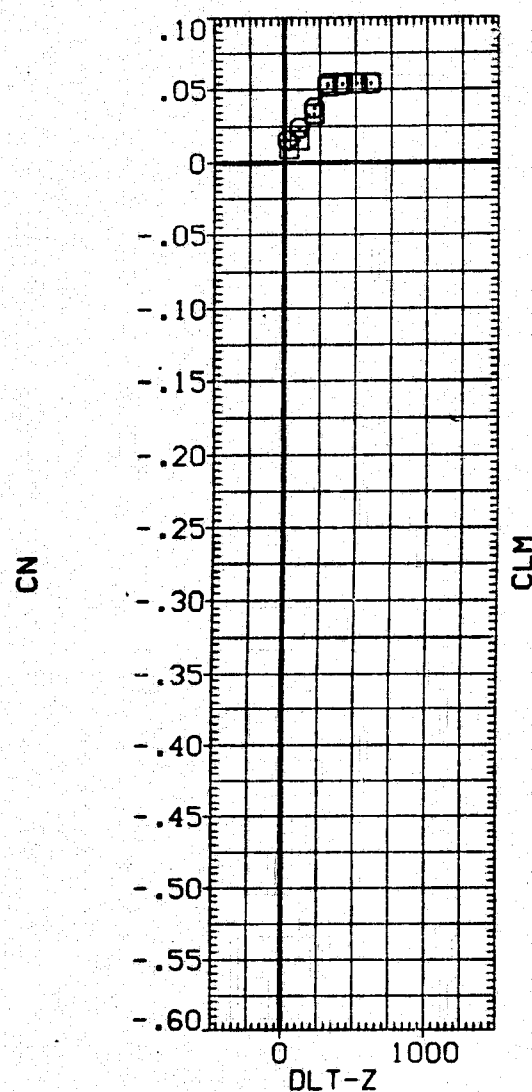


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO20)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.564	.000	ALPHA	5.000
□	200.620	3.000	DLTALF	.000
		.000	MACH	5.930
		.000	ELEVON	.000
		4.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. XT
ZMRP	.0000	IN. YT
SCALE	416.4000	IN. ZT

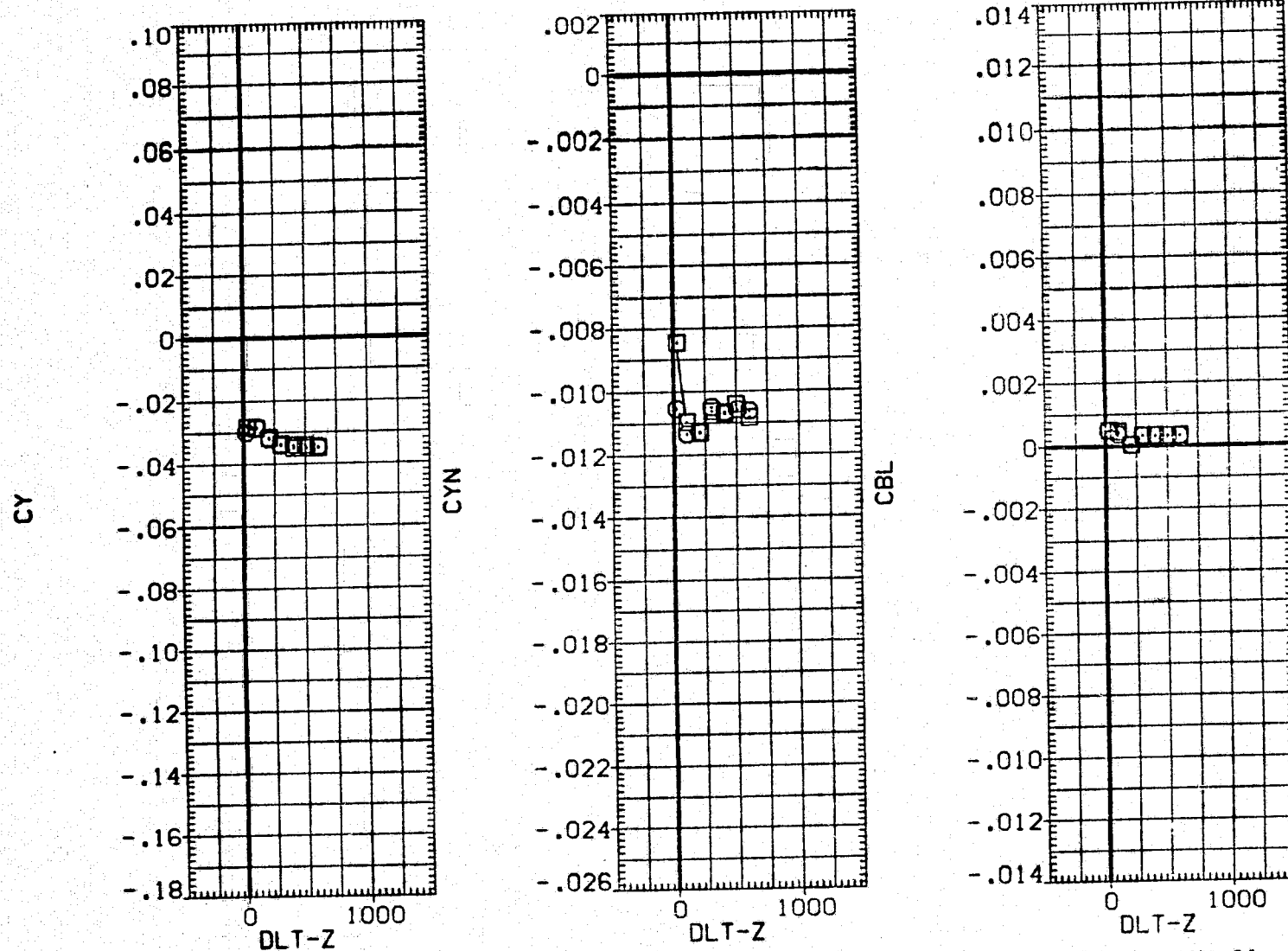
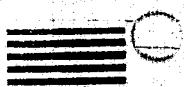


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)



AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO21)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.641	BETA	.000	-5.000	5.930	.000
□	200.610	DLTBTA	3.000			
		AIRLON	.000			
		GRID	4.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

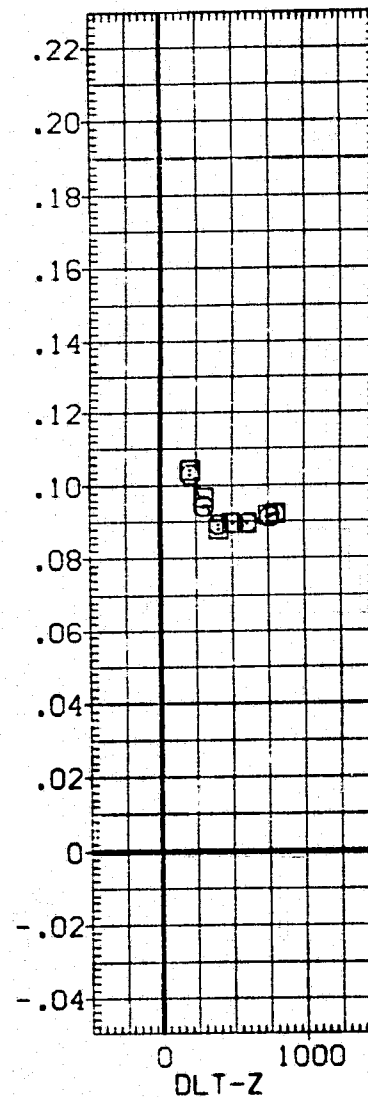
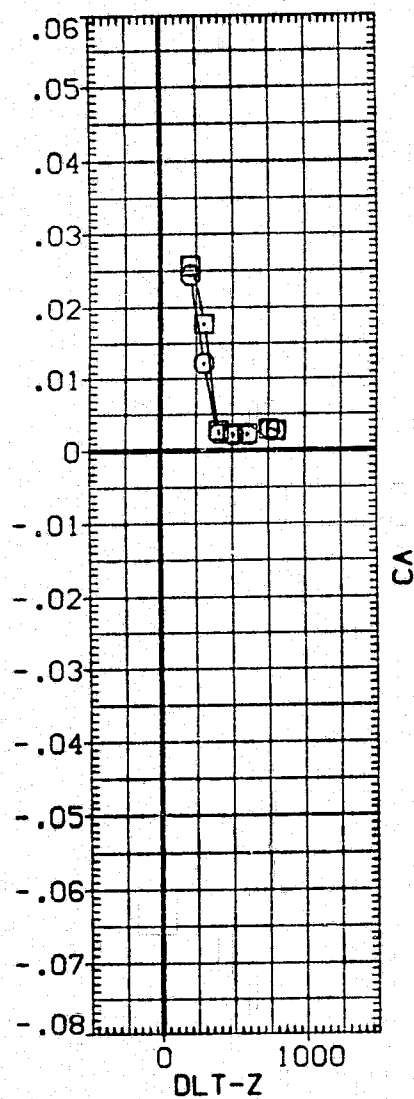
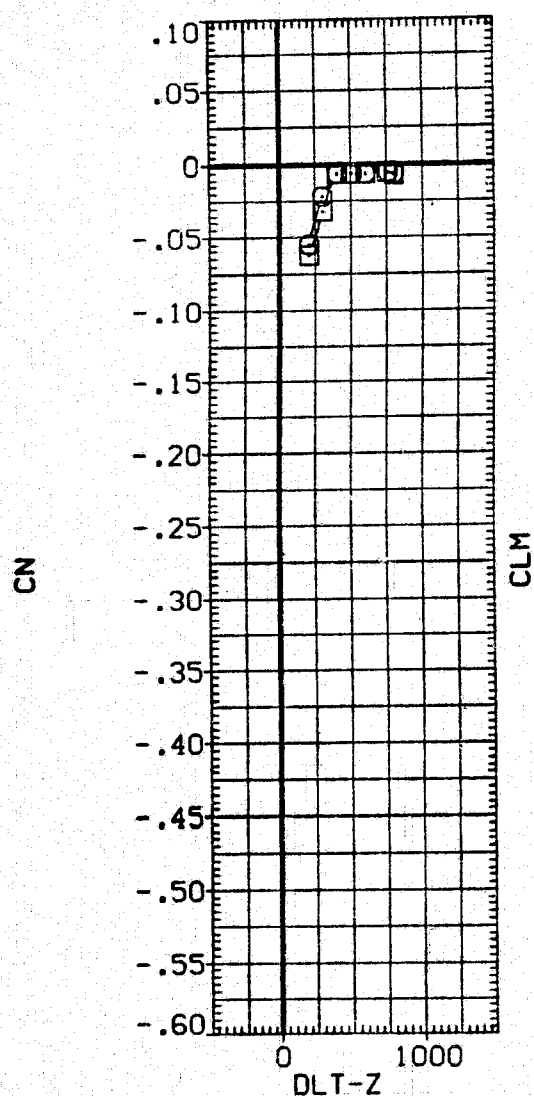


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO21)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.641	BETA	.000	ALPHA
□	200.610	DLTBTA	3.000	DLTALF
		AILRON	.000	MACH
		GRID	.000	ELEVON
			4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. X _T
YMRF	.0000	IN. Y _T
ZMRF	416.4000	IN. Z _T
SCALE	.0100	

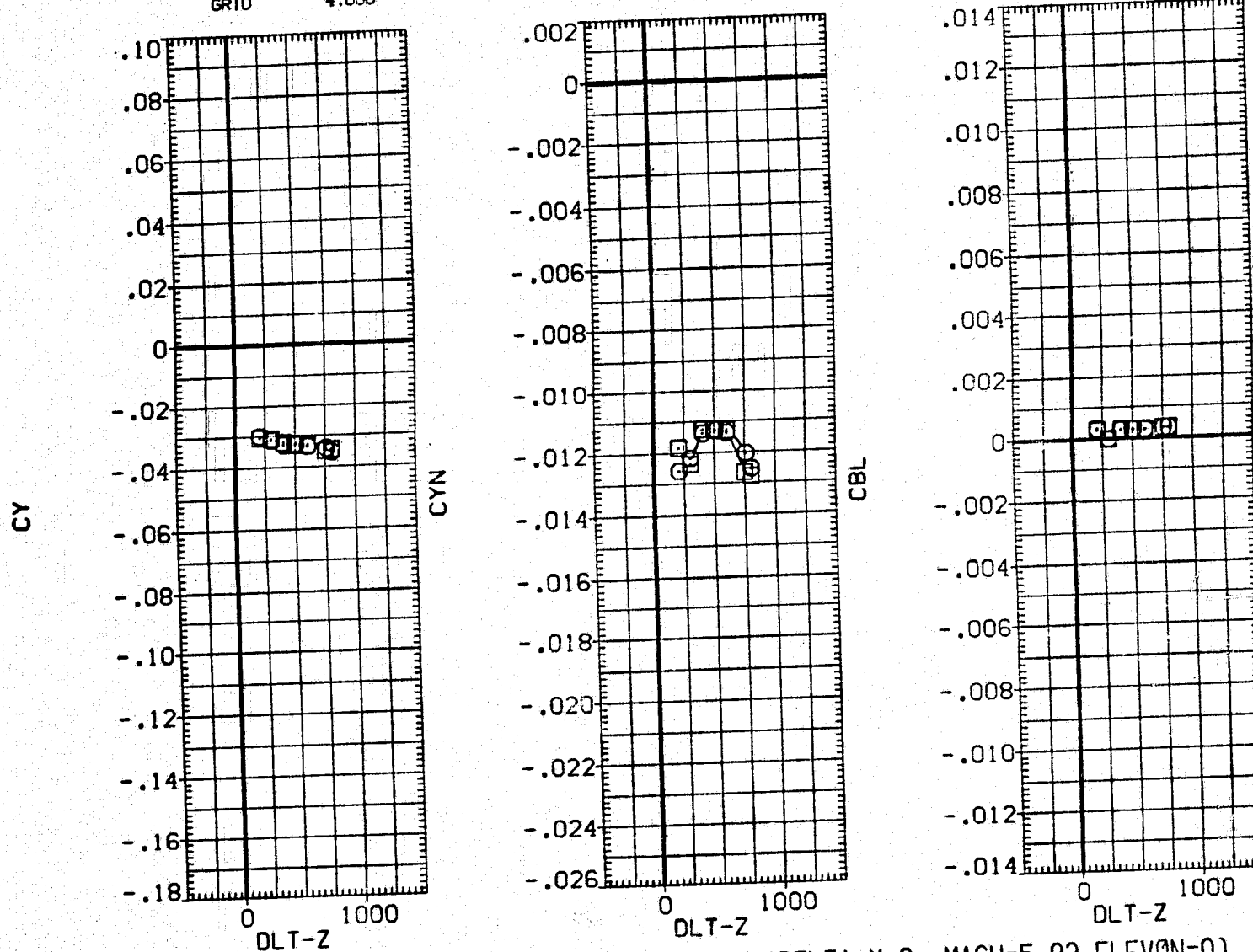


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO22)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.590	.000	ALPHA	5.000
□	200.450	BETA	3.000	DLTALF -10.000
◇	400.620	DLTBTA	.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

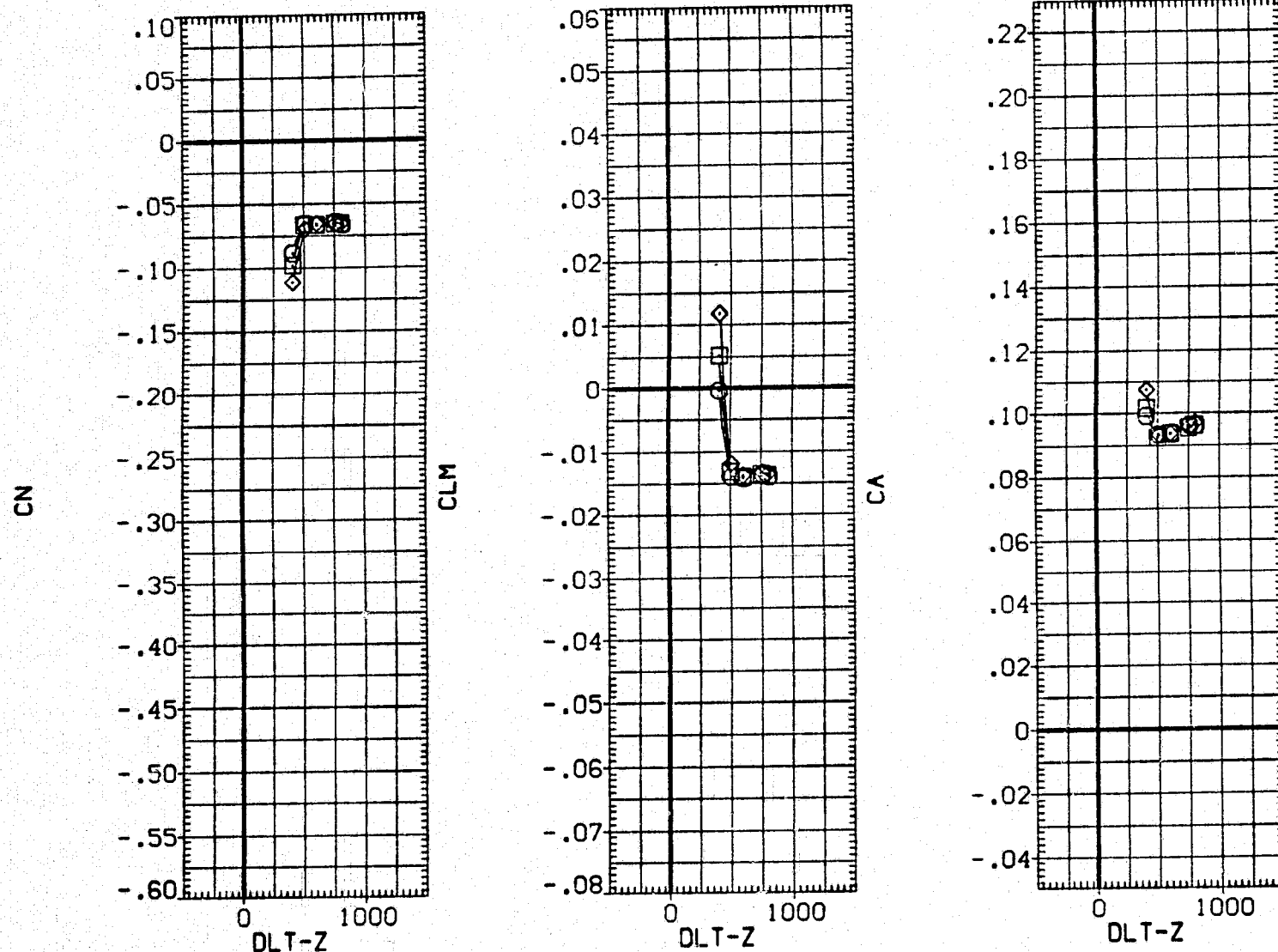


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO22)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.590	.000	5.000	-10.000	5.930	.000
□	200.450	BETA	3.000			
◇	400.620	DLTBTA	.000			
		AILRON	.000			
		GRID	4.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

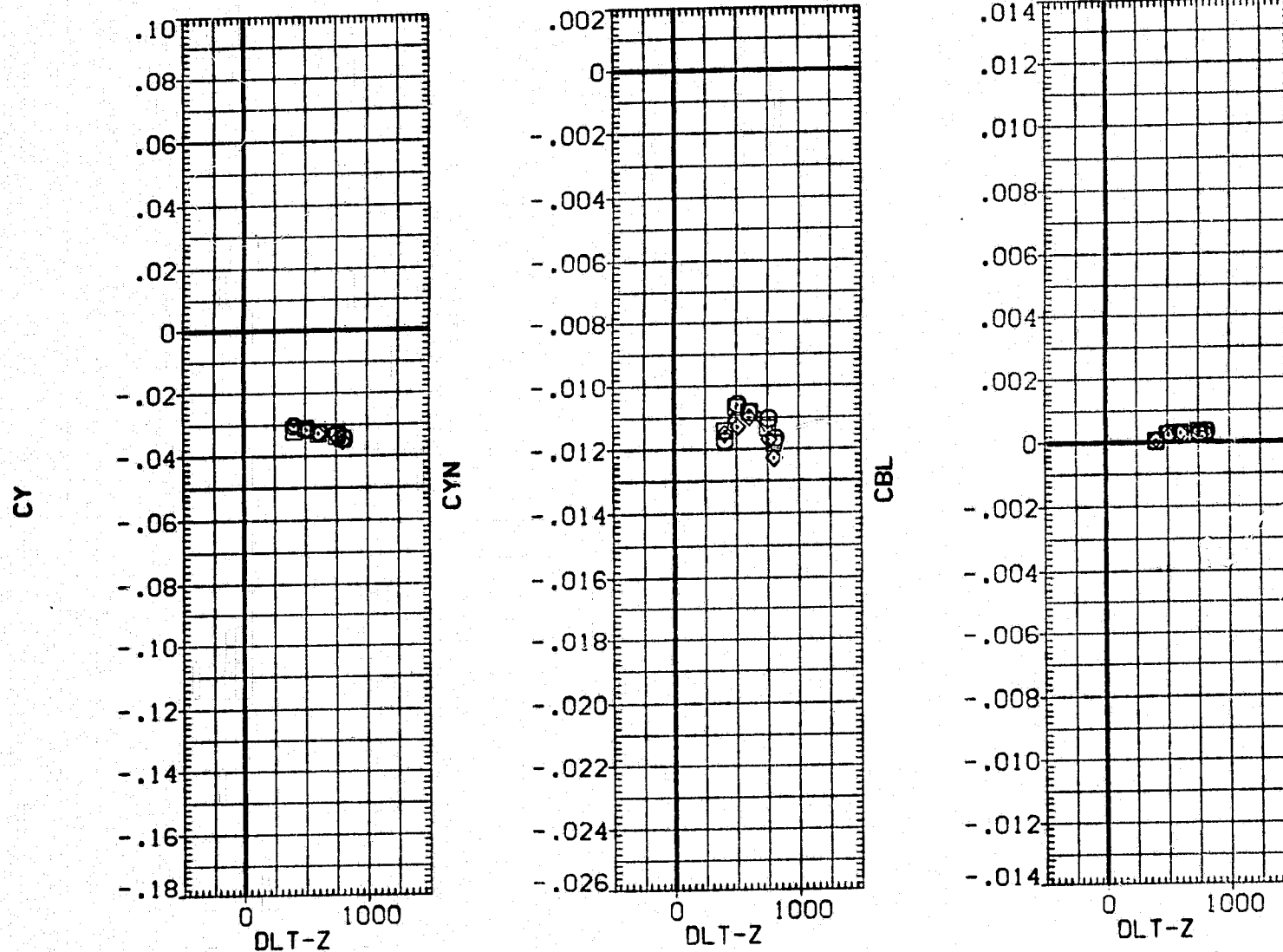


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO23)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.561	.000	ALPHA	5.000
□	200.520	3.000	DLTALF	-15.000
◇	400.510	.000	MACH	5.930
		.000	ELEVON	.000
		GRID	4.000	

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

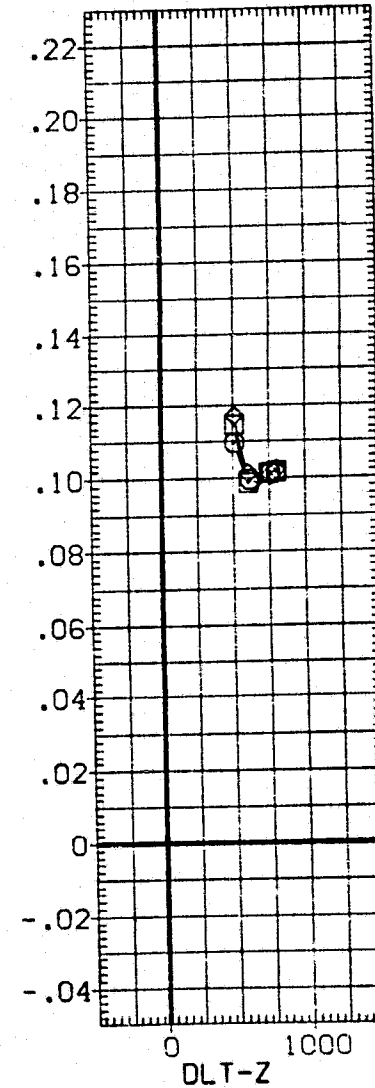
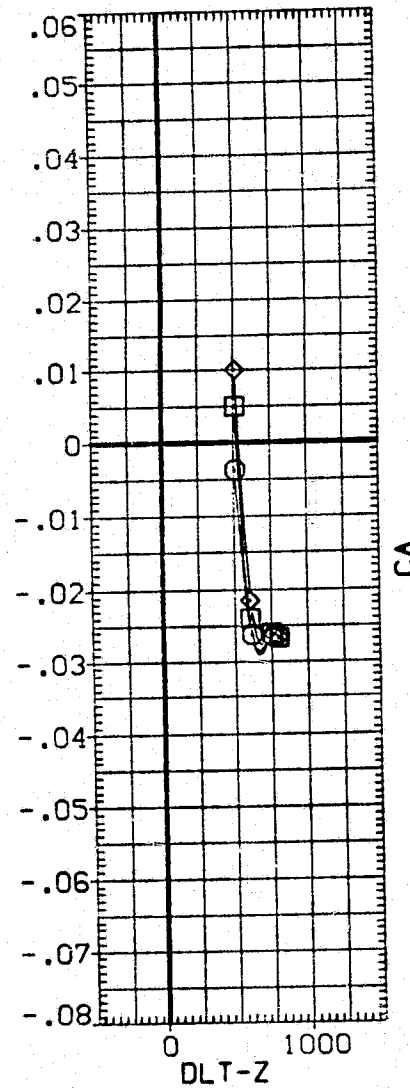
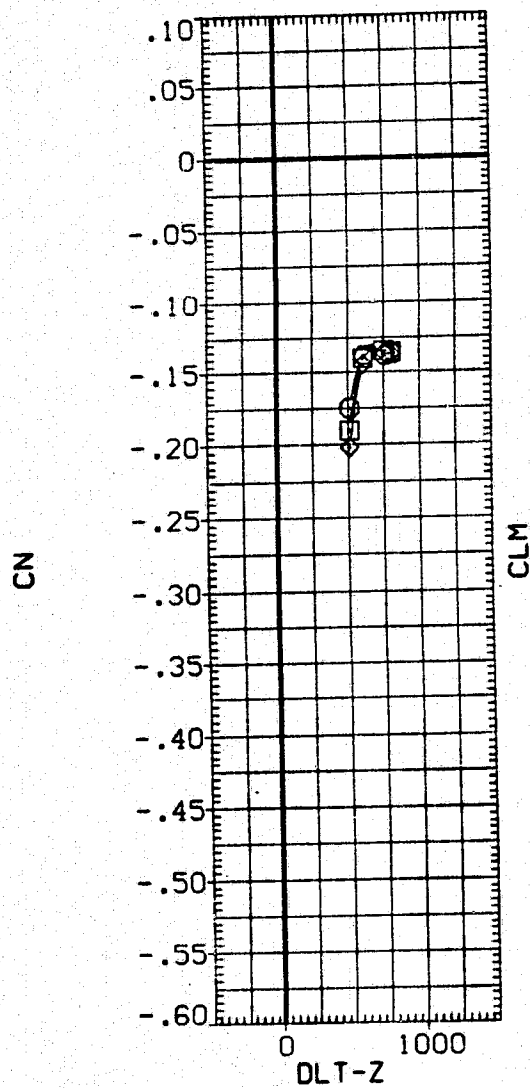


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO23)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.561		ALPHA	5.000
□	200.520	BETA	DLTALF	-15.000
◇	400.510	DLTBTA	MACH	5.930
		AILRON	ELEVON	.000
		GRID		4.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

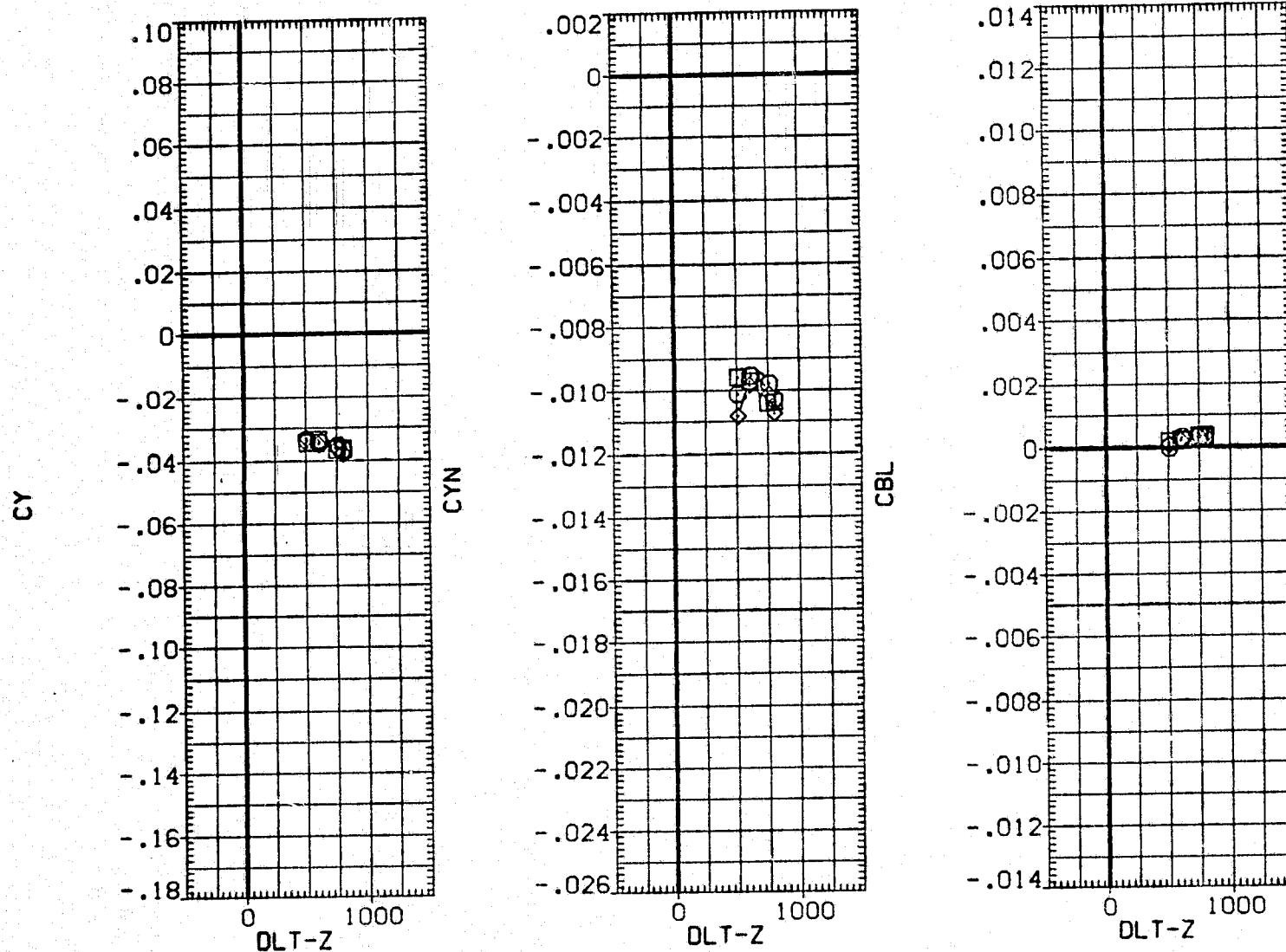


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO25)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.476	BETA	.000	ALPHA 5.000
□	200.530	DLTBTA	3.000	DLTALF -20.000
◇	400.570	AILRON	.000	MACH 5.930
		GRID	4.000	ELEVON .000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

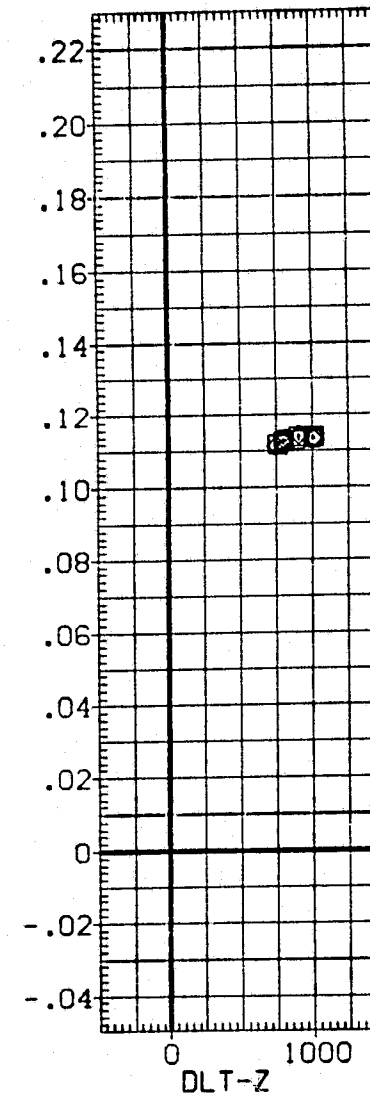
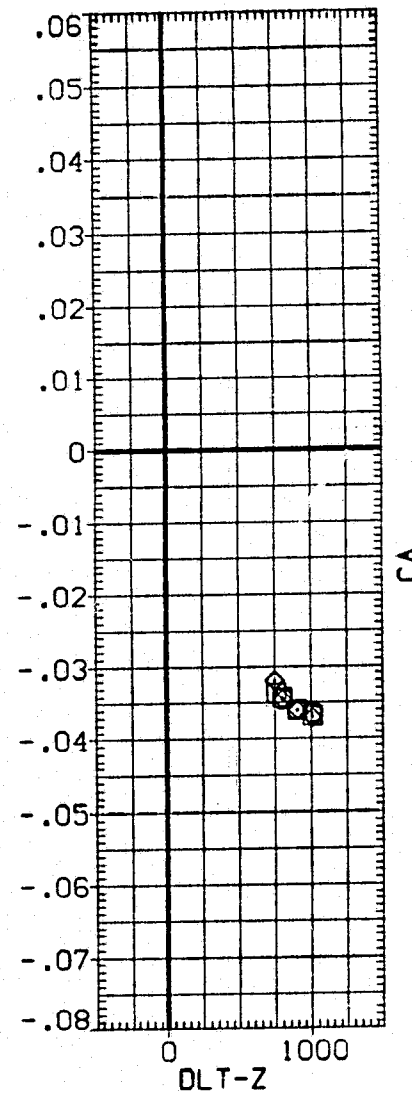
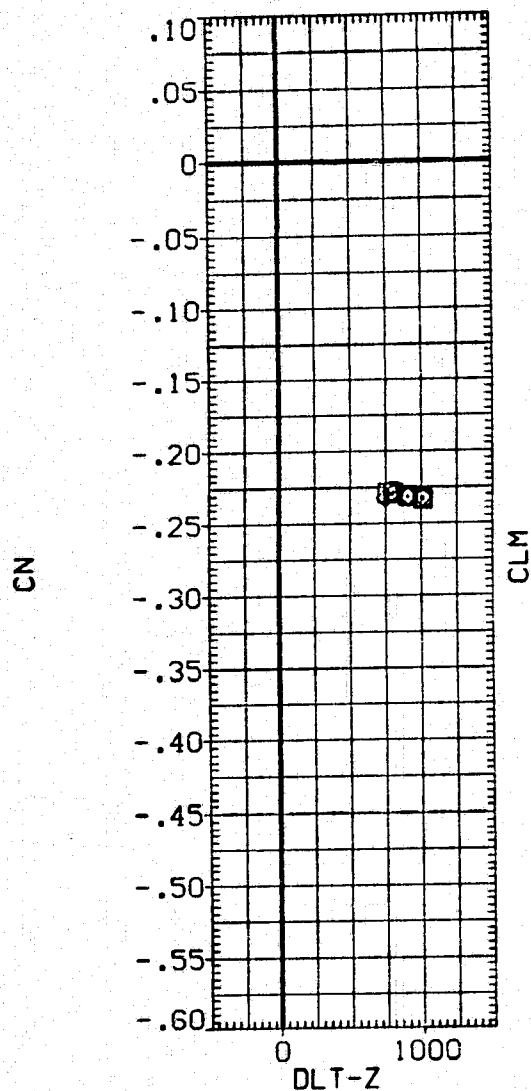


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO25)

SYMBOL		PARAMETRIC VALUES			
	DLT-X				5.000
○	.476	DLT-Y	.000	ALPHA	
□	200.530	BETA	3.000	DLTALF	-20.000
◇	400.570	DLTBT	.000	MACH	5.930
		AIRLON	.000	ELEVON	.000
		GRID	4.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

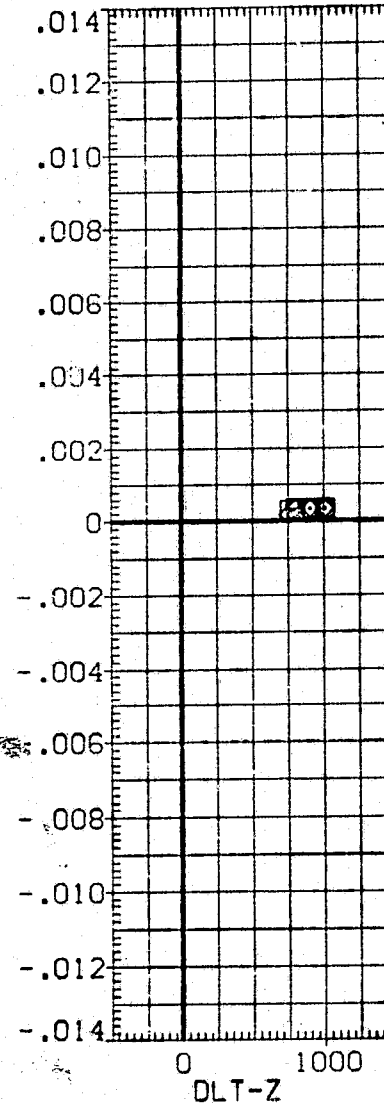
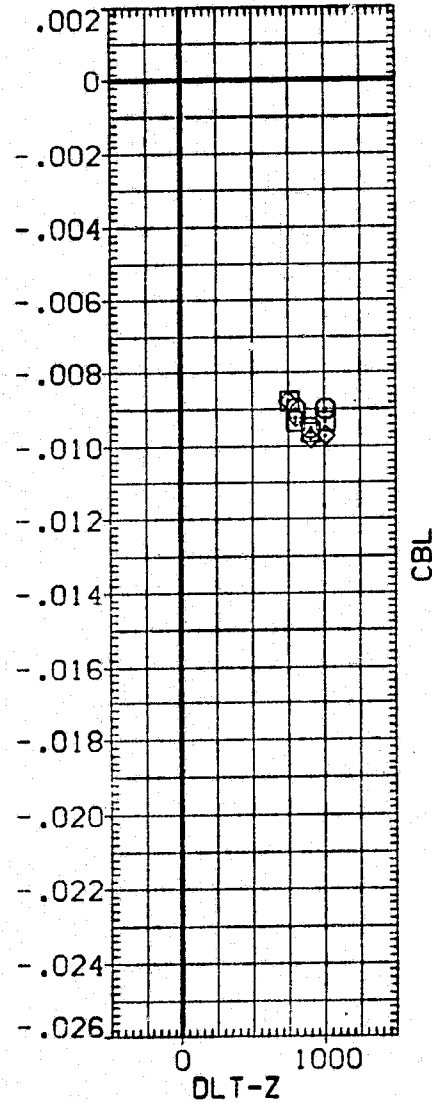
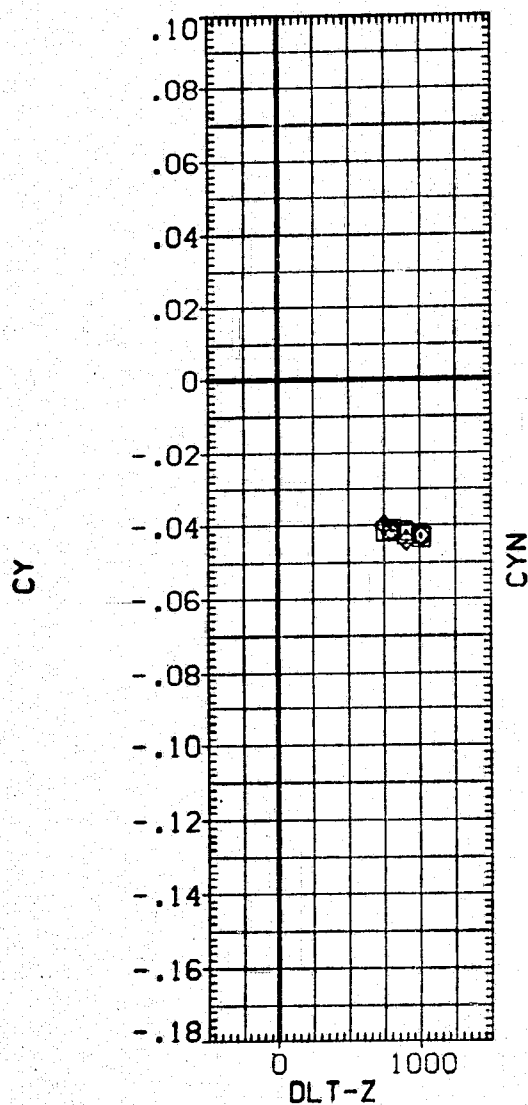


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO26)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.586	.000	ALPHA	-5.000
□	200.520	.000	DLTALF	.000
◇	400.660	.000	MACH	5.930
		.000	ELEVON	.000
		6.000		

REFERENCE INFORMATION		
SREF	2630.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

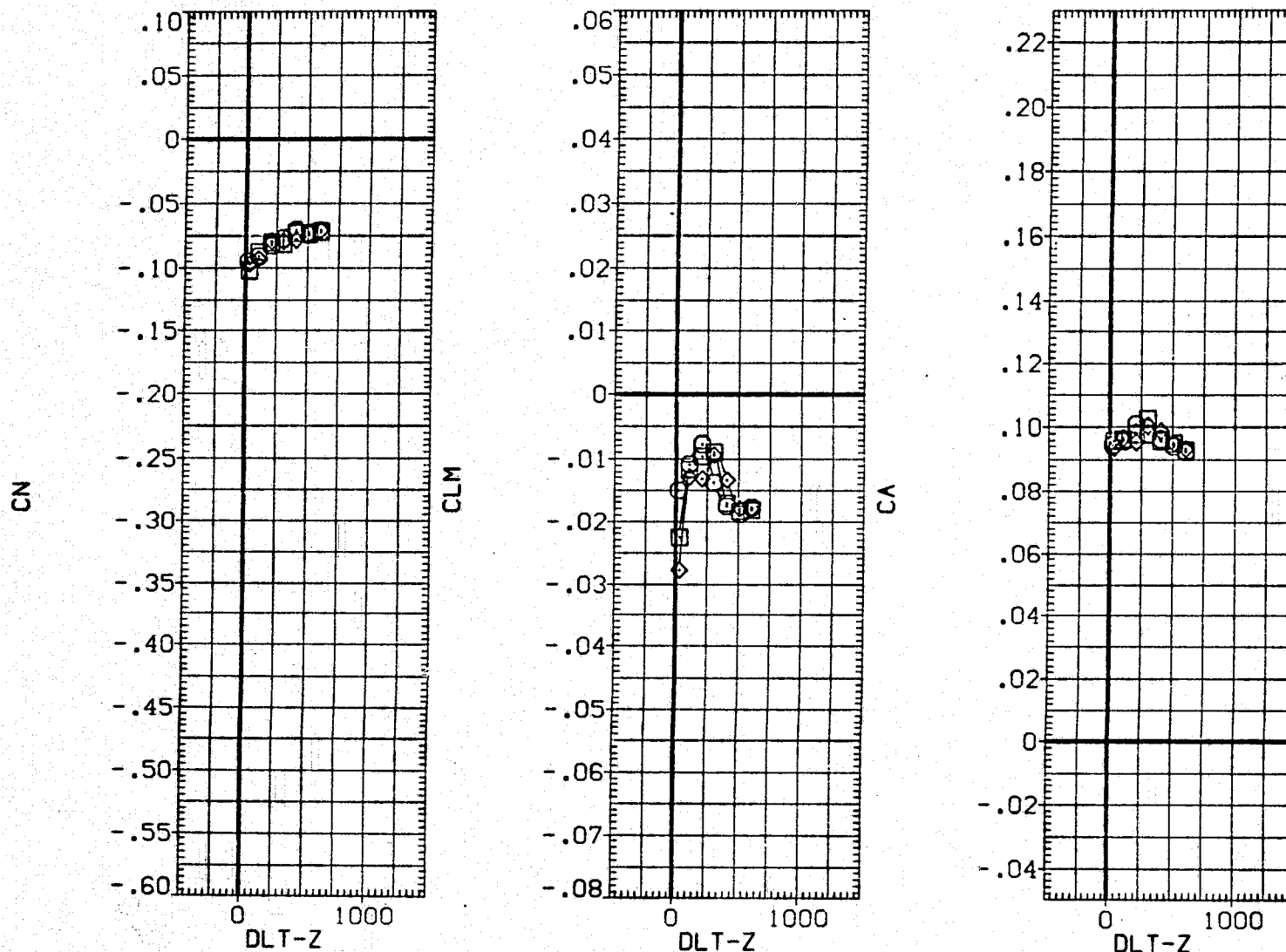


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO26)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-Y	DLT-Z	DLT-Y	DLT-Z	
○	.586	200.520	.000	.000	ALPHA
□	200.520	400.660	.000	.000	DLTALF
◇	400.660		.000	5.930	MACH
			.000	.000	ELEVON
			6.000		GRID

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

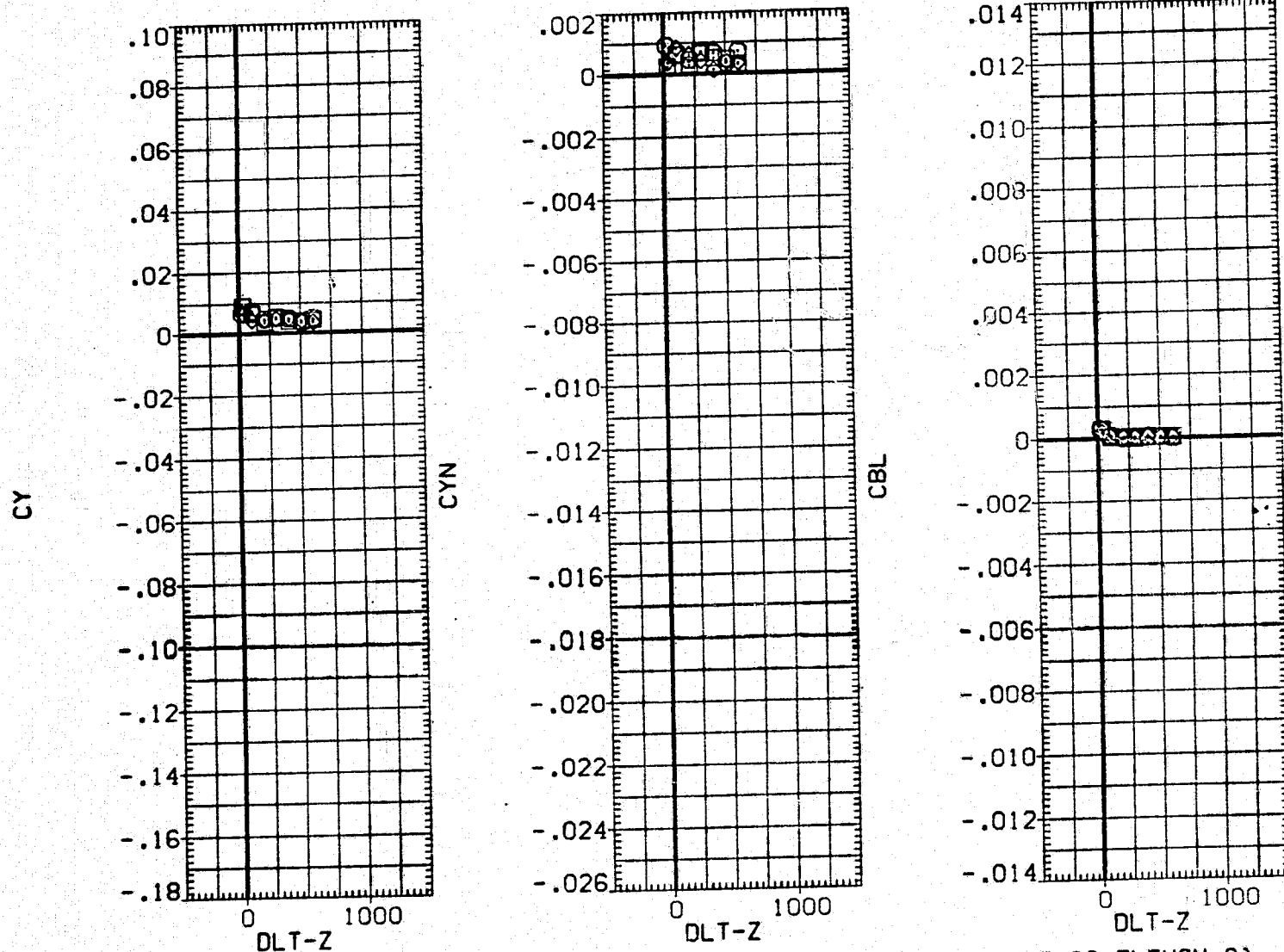


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO27)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.480	.000	ALPHA	-5.000
□	200.430	.000	DLTALF	-5.000
		.000	MACH	5.930
		.000	ELEVON	.000
		.000		
		6.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

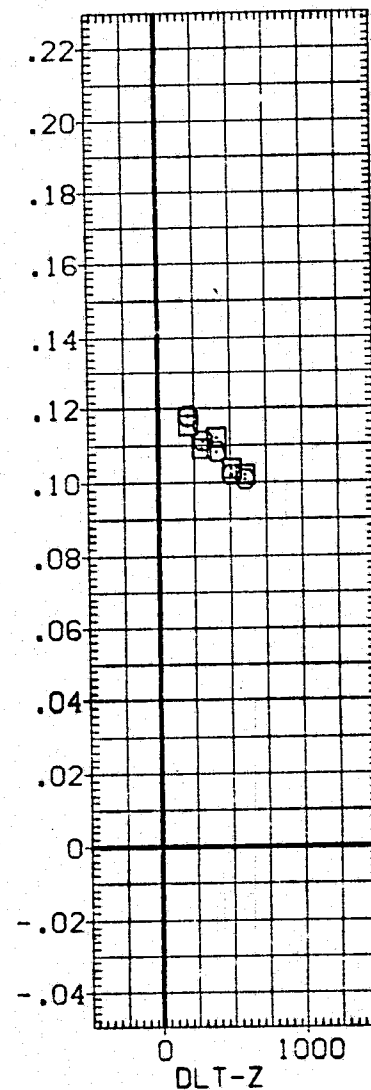
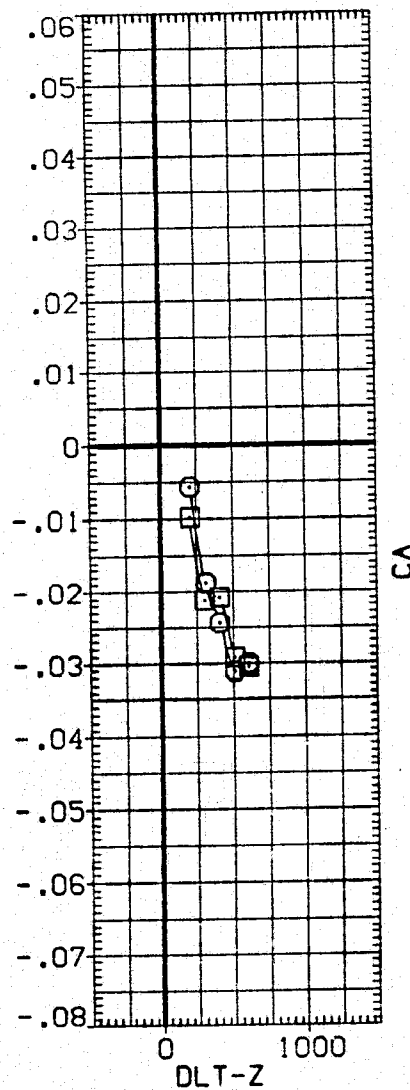
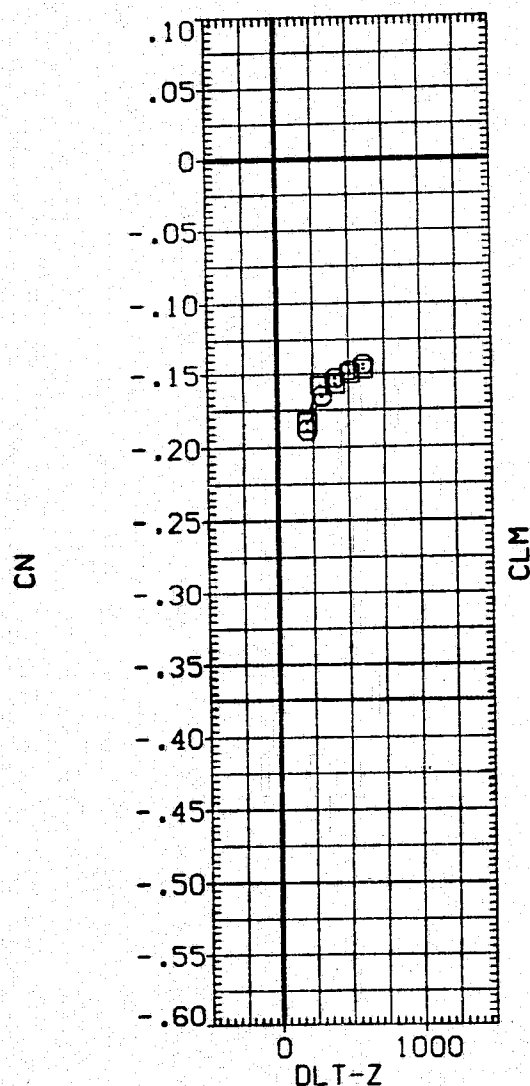


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.480		.000	-5.000	
□	200.430	BETA	.000	-5.000	
		DLTBTA	.000	MACH	5.930
		ATLRON	.000	ELEVON	.000
		GRID	6.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

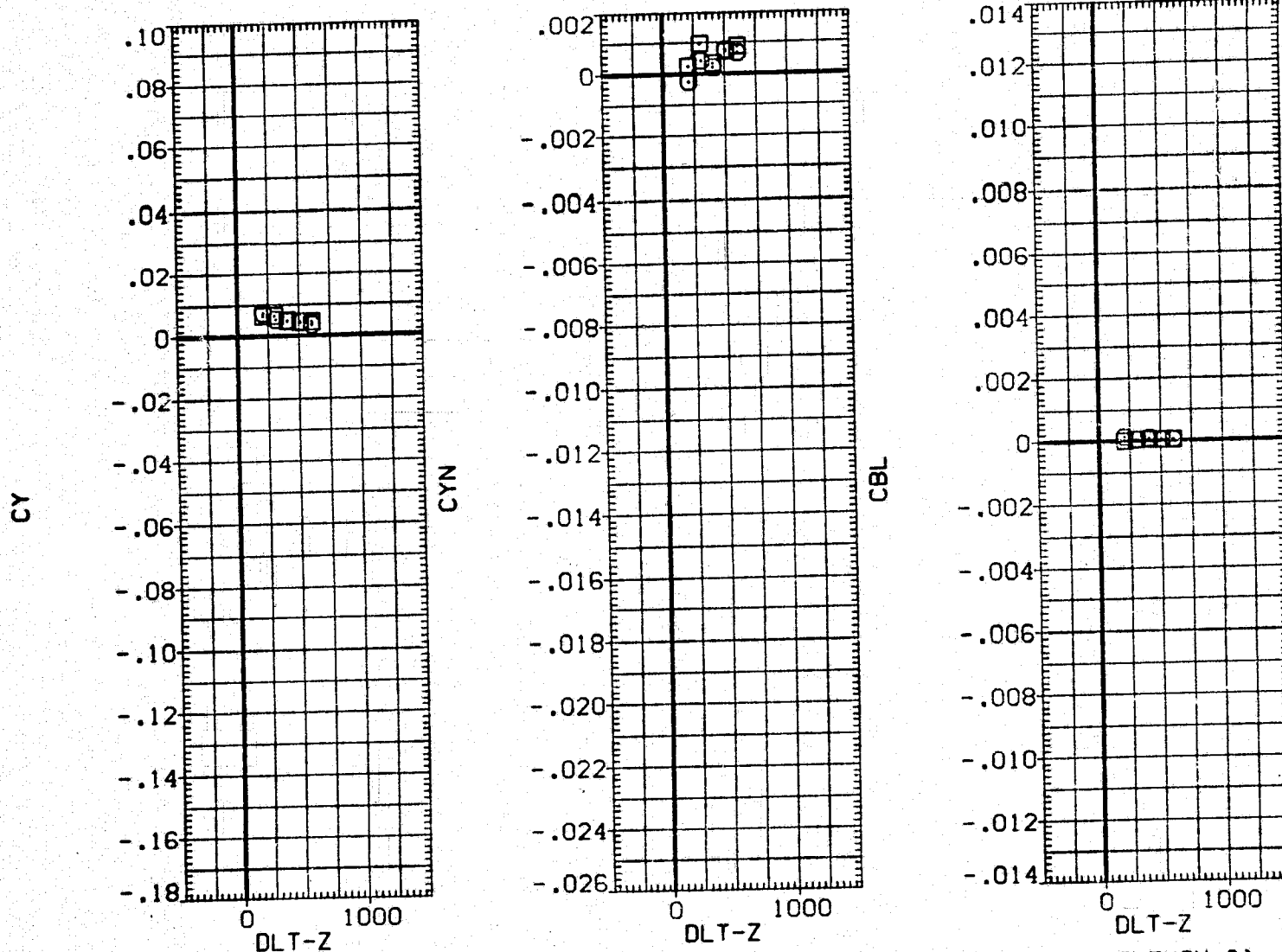


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO28)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.503	.000	ALPHA	-5.000
□	200.570	.000	DLTALF	-10.000
◇	400.530	.000	MACH	5.930
		.000	ELEVON	.000
		6.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

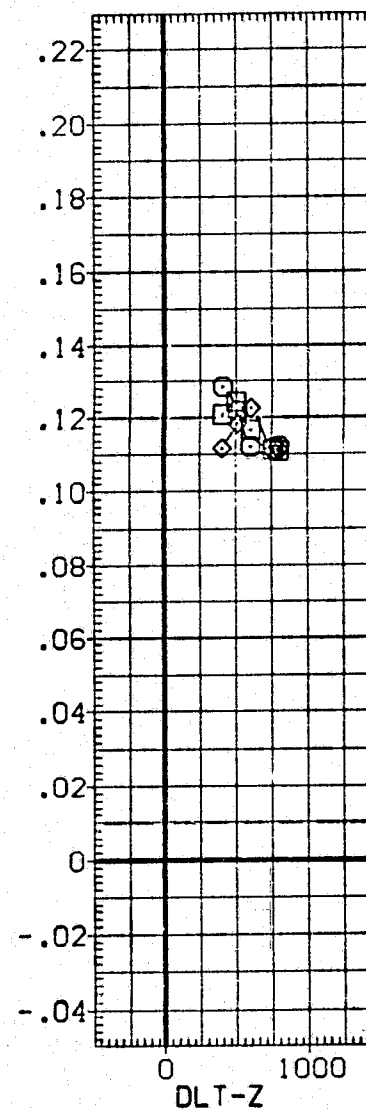
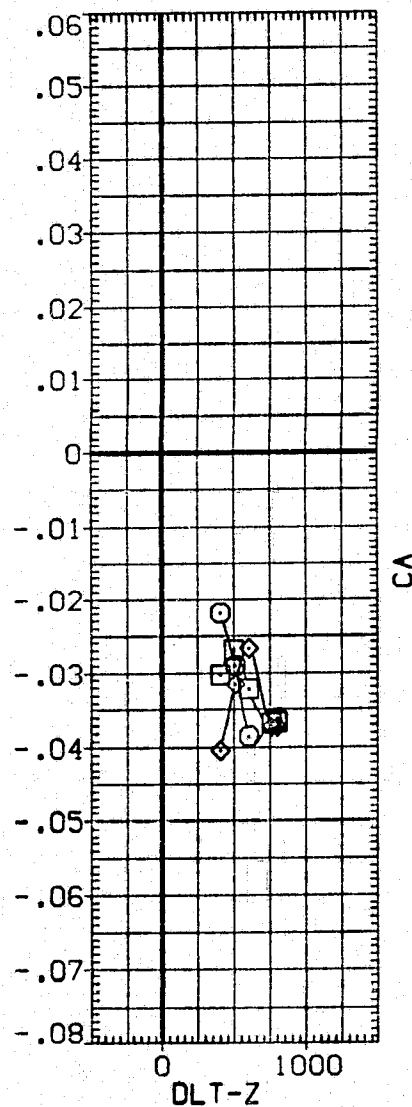
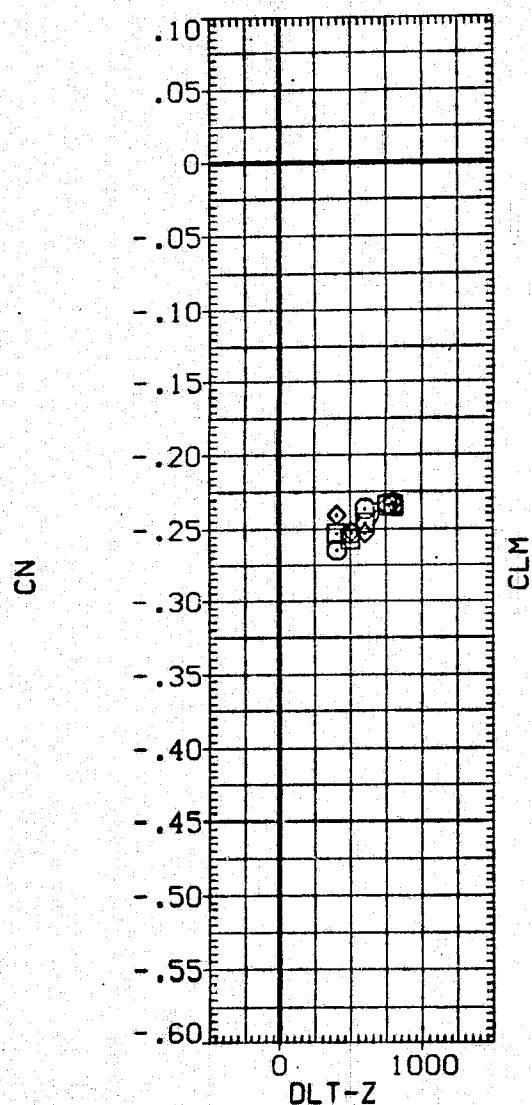


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO28)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.503	.000	.000	.000	ALPHA	-5.000
□	200.570	.000	BETA	.000	DLTALF	-10.000
◇	400.530	.000	DLTBT	.000	MACH	5.930
			DLTBT	.000	ELEVON	.000
			GRID	6.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

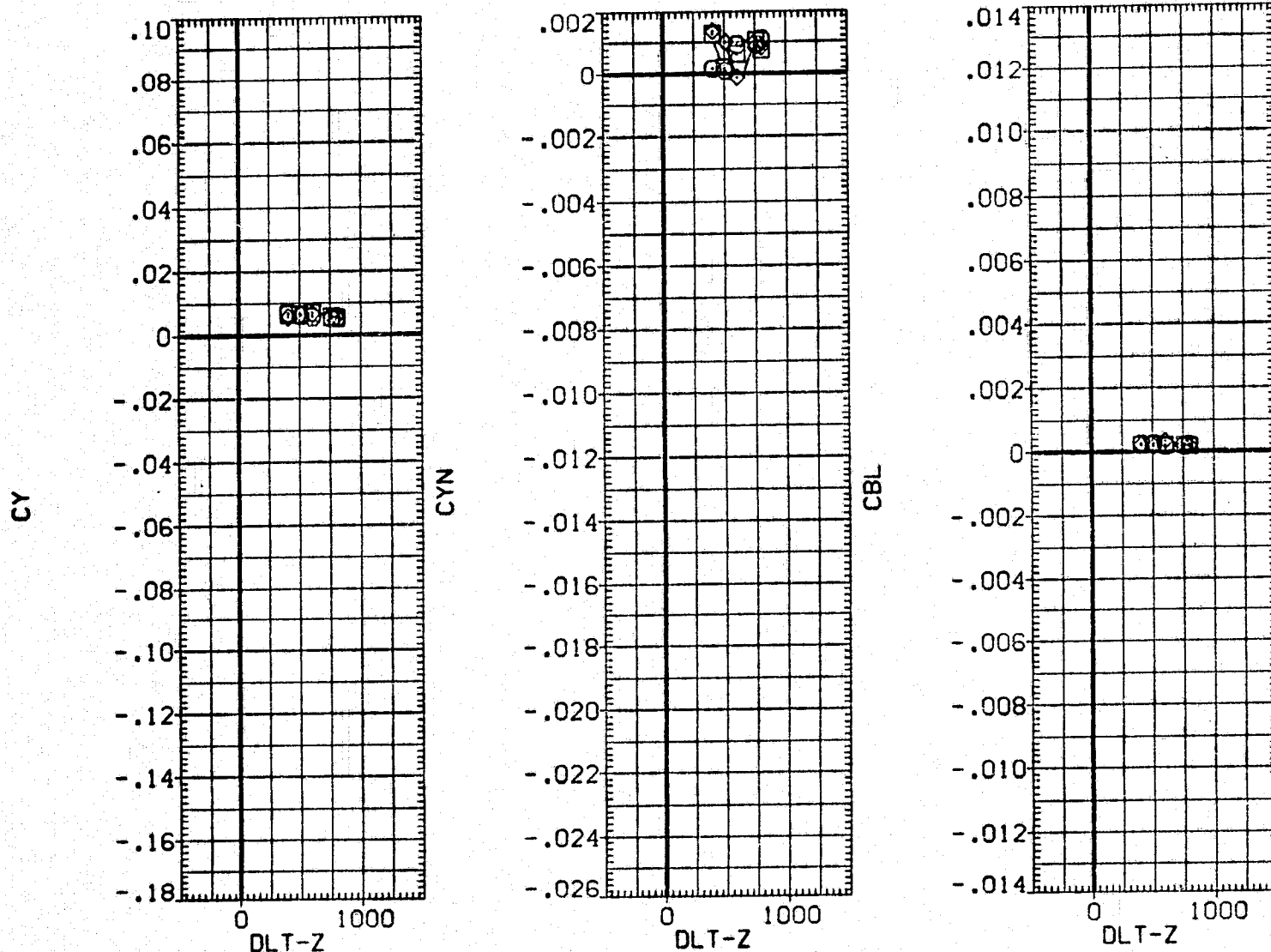


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO29)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.456	.000	ALPHA	-5.000
□	200.450	.000	DLTALF	-15.000
◇	400.420	.000	MACH	5.930
		.000	ELEVON	.000
		GRID	6.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

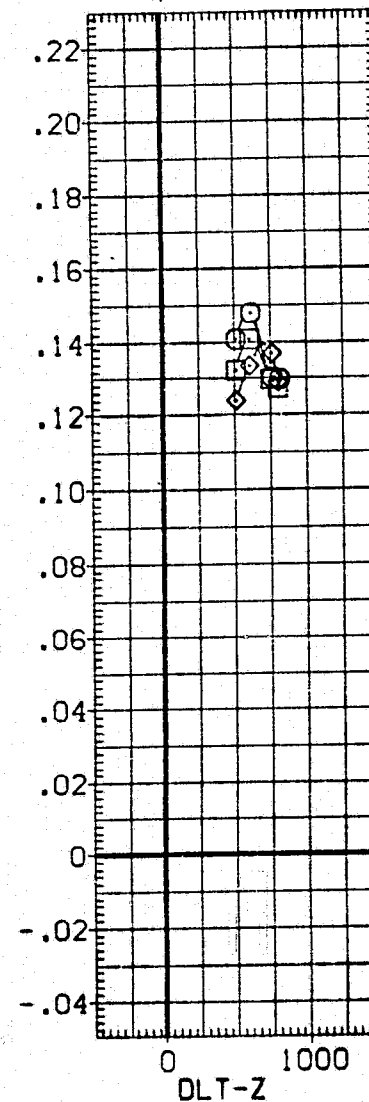
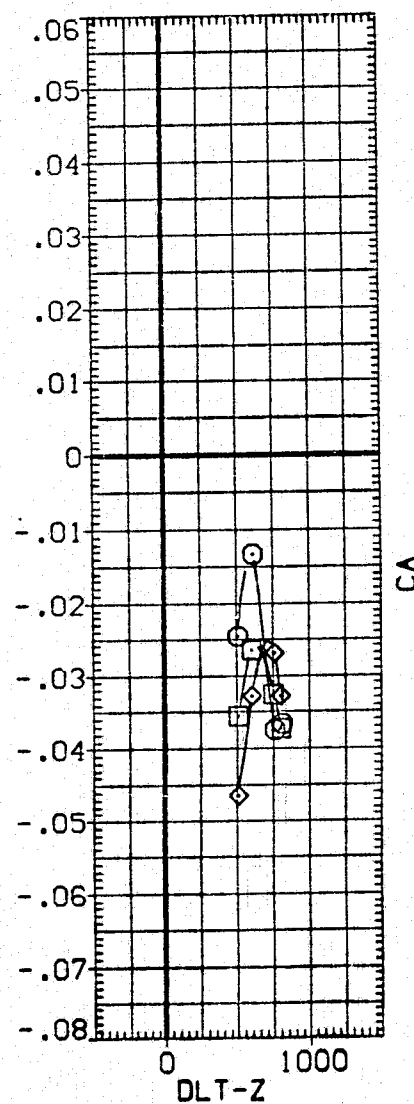
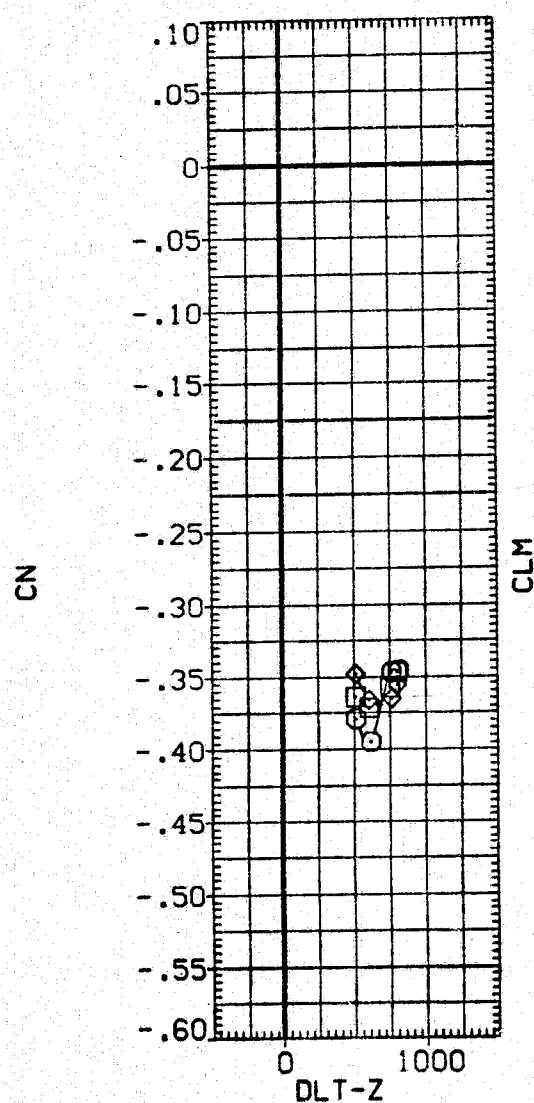


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS ($\Delta Y=0$, $MACH=5.93$, $ELEVON=0$)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO29)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.456	.000	ALPHA	-5.000
□	200.450	BETA	.000	DLTALF -15.000
◇	400.420	DLTBTA	.000	MACH 5.930
		ATLRON	.000	ELEVON .000
		GRID	6.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

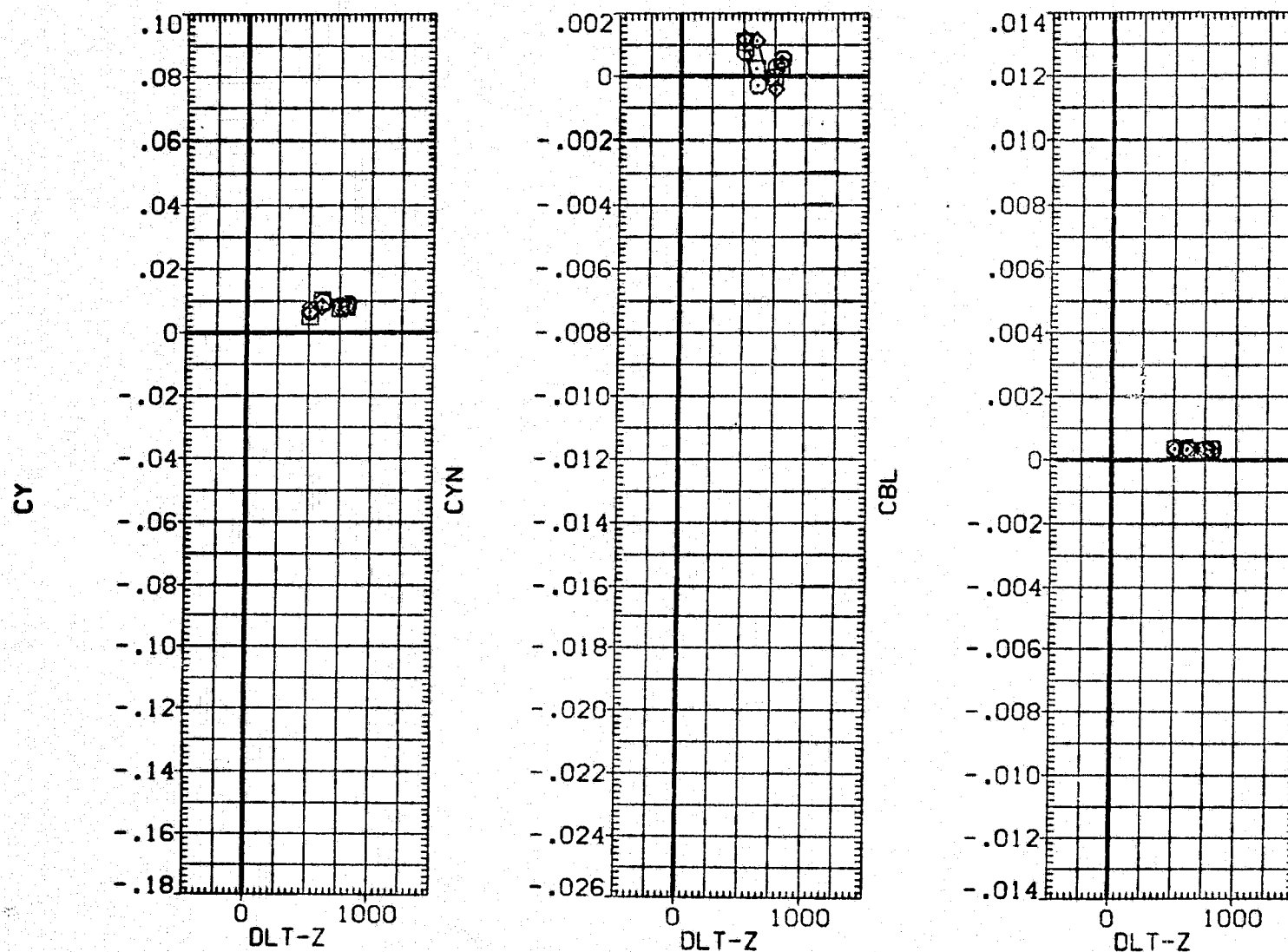


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO31)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-Y	BETA	DLT-Y	BETA	
○	.470	.000	ALPHA	-5.000	
□	200.480	.000	DLTALF	-20.000	
◇	400.450	.000	MACH	5.930	
		.000	ELEVON	.000	
		6.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

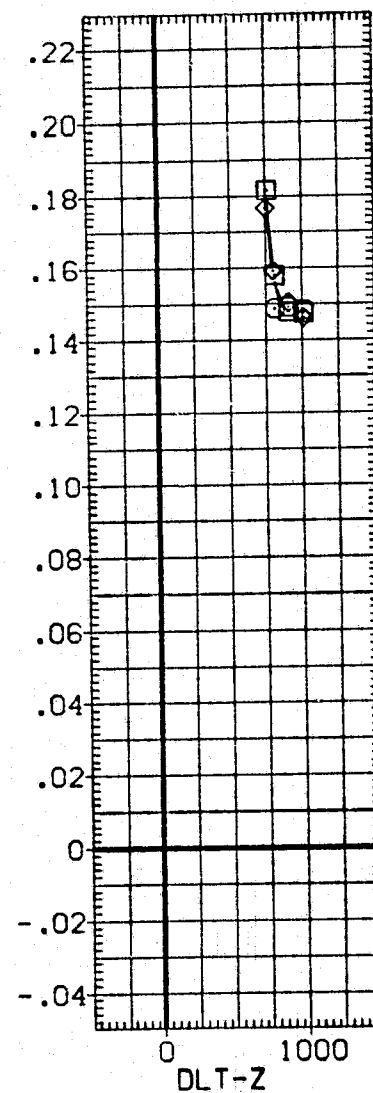
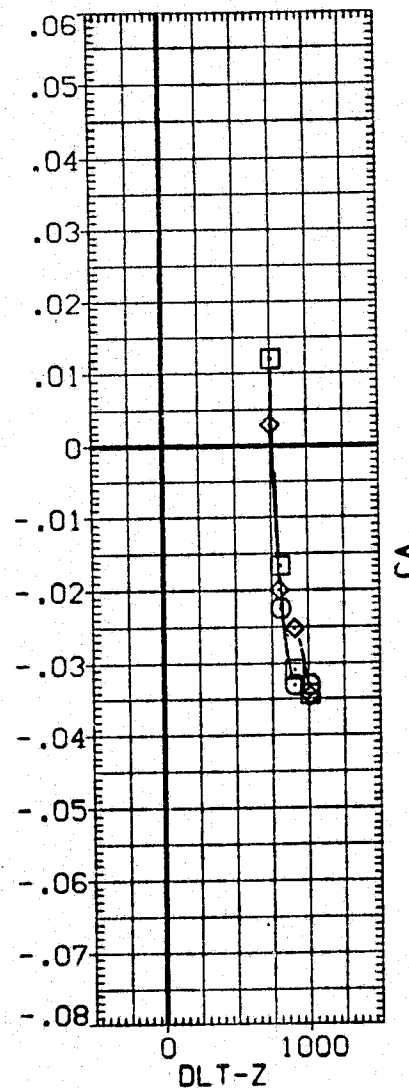
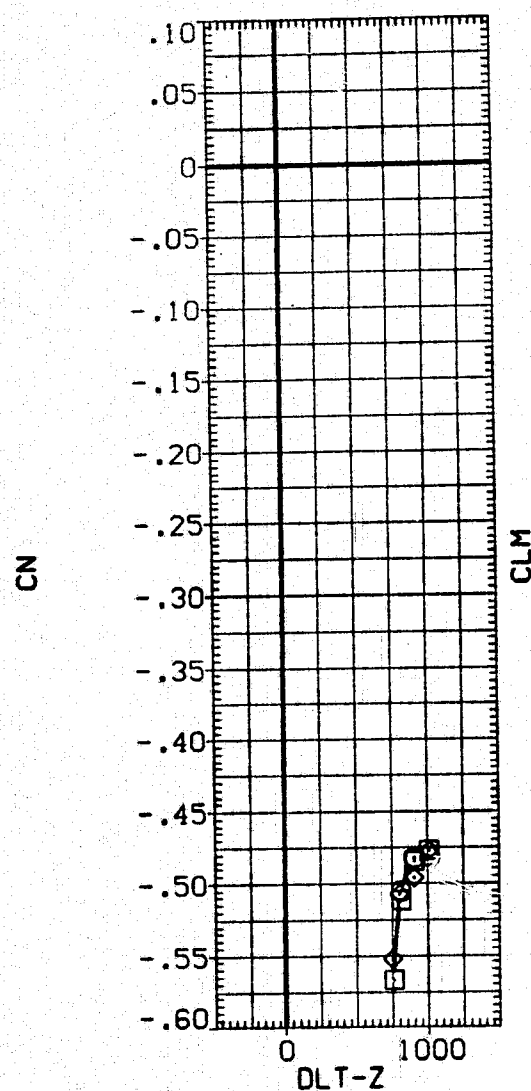


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO31)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	-5.000
○	.470	.000	BETA	.000	-20.000
□	200.480	.000	DLTBTA	.000	5.930
◇	400.450	.000	AILRON	.000	ELEVON
		6.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

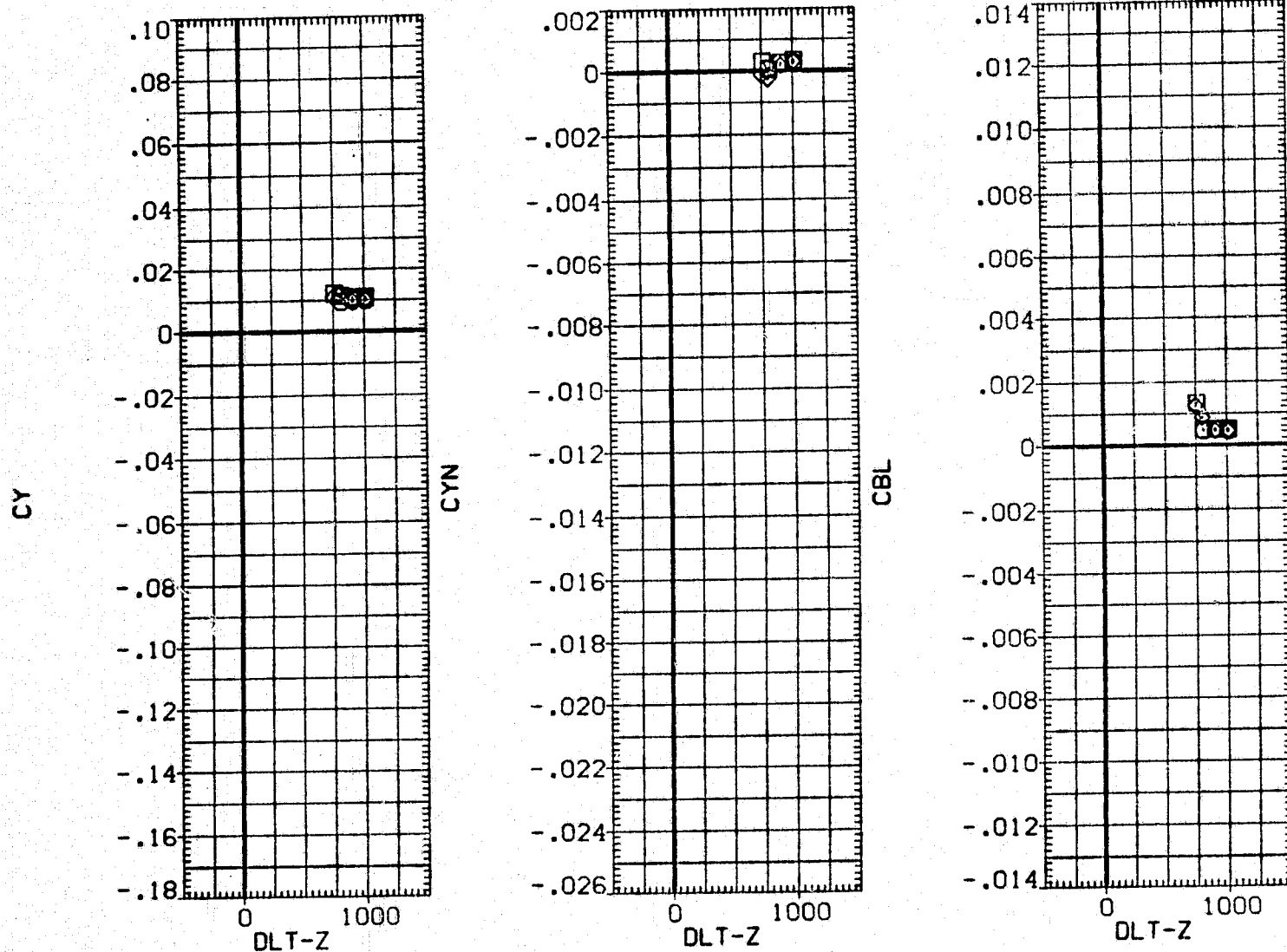


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO32)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
	.605	.000	ALPHA	-5.000
□	200.520	BETA 3.000	DLTALF	.000
		DLTBTA .000	MACH	5.930
		AILRON .000	ELEVON	.000
		GRID 7.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

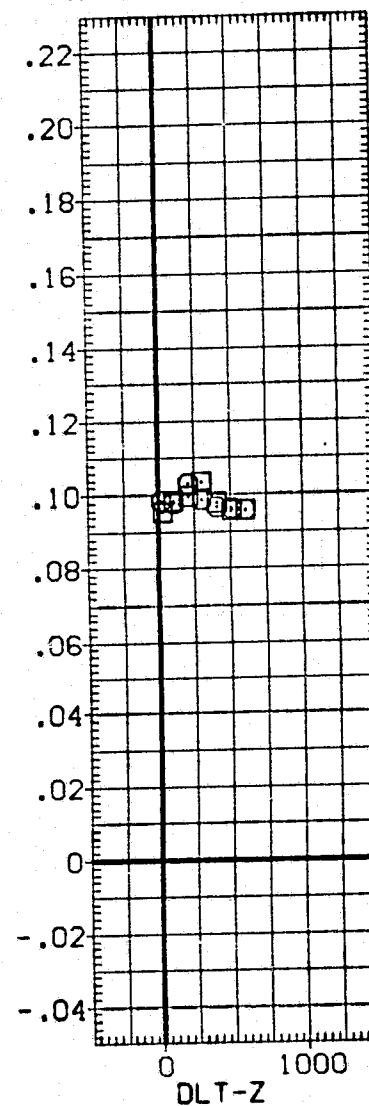
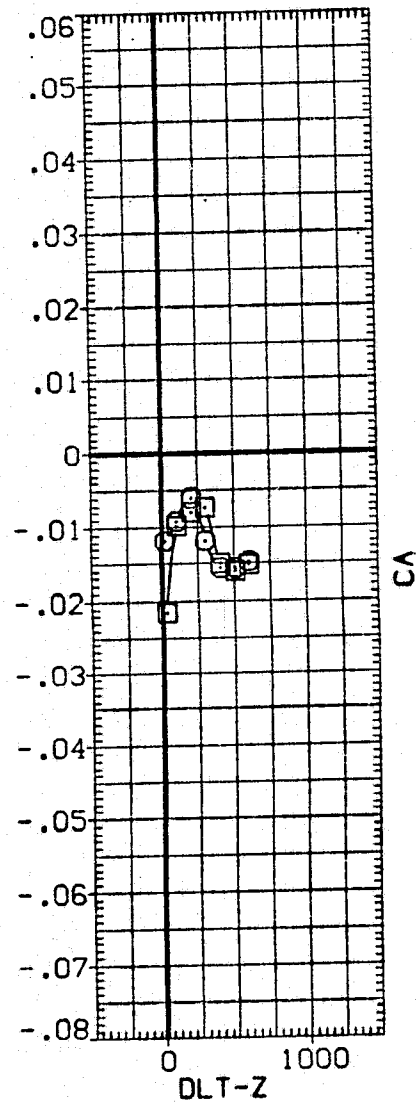
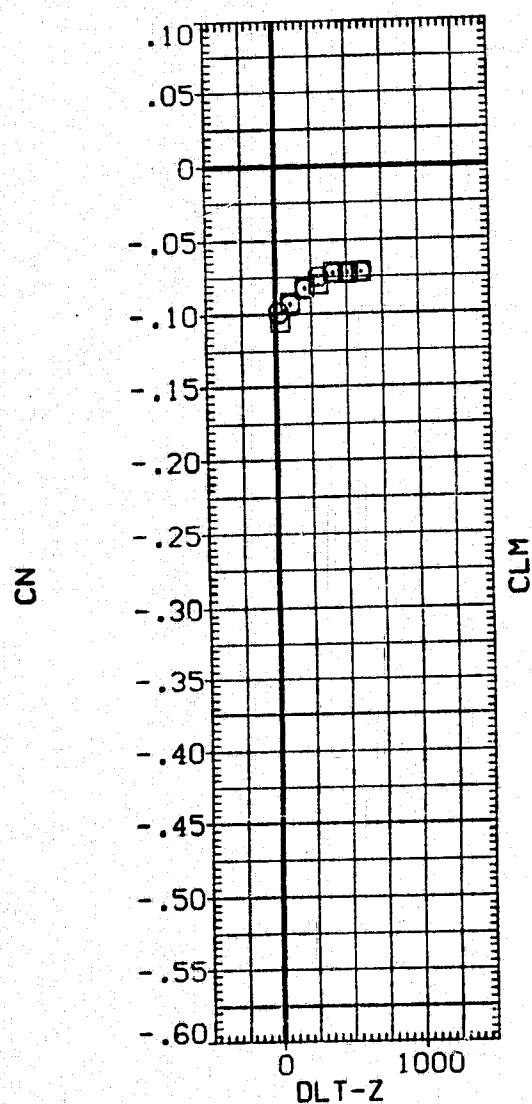


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO32)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLT-X	DLT-Y
○	.605	.000	.000	-5.000	.000	.000
□	200.520	BETA	3.000	DLTALF	.000	.000
		DLTBTBTA	.000	MACH	5.930	.000
		ATLRON	.000	ELEVON	.000	.000
		GRID	7.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

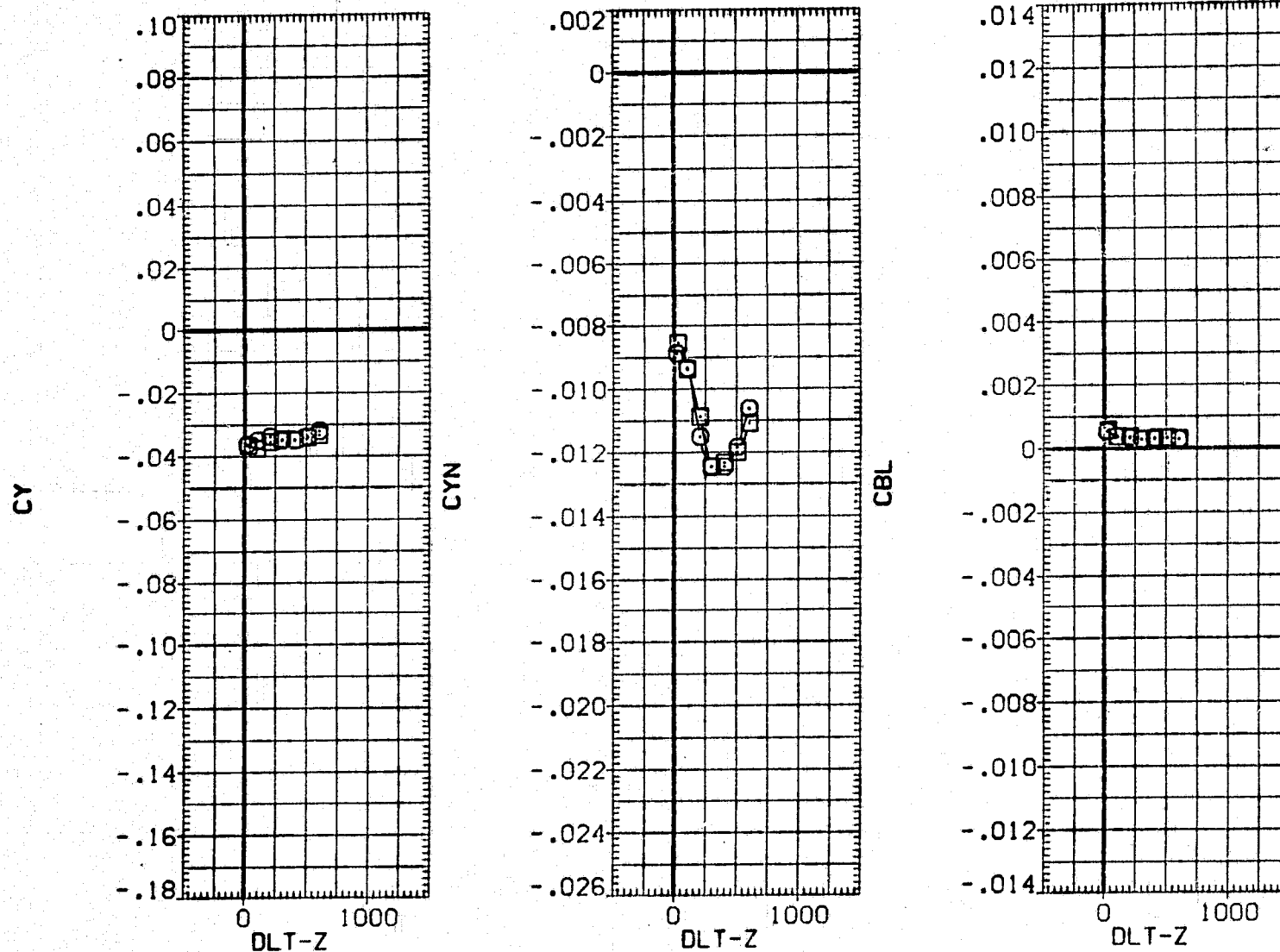


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO33)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.494	.000	ALPHA	-5.000
□	200.560	BETA 3.000	DLTALF	-5.000
		DLTBT A .000	MACH	5.930
		AILRON .000	ELEVON	.000
		GRID 7.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

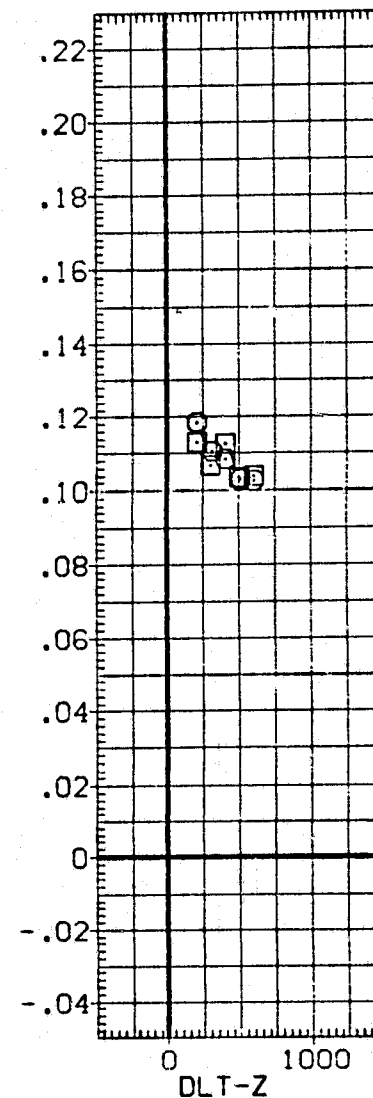
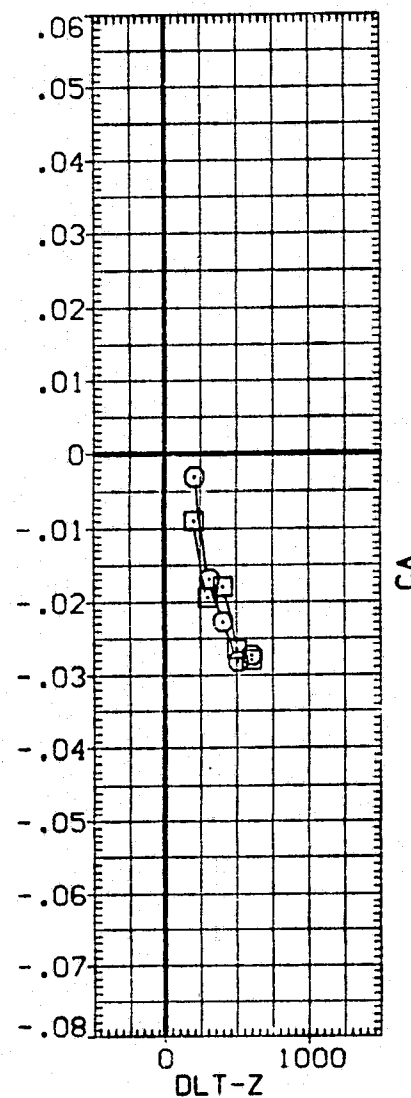
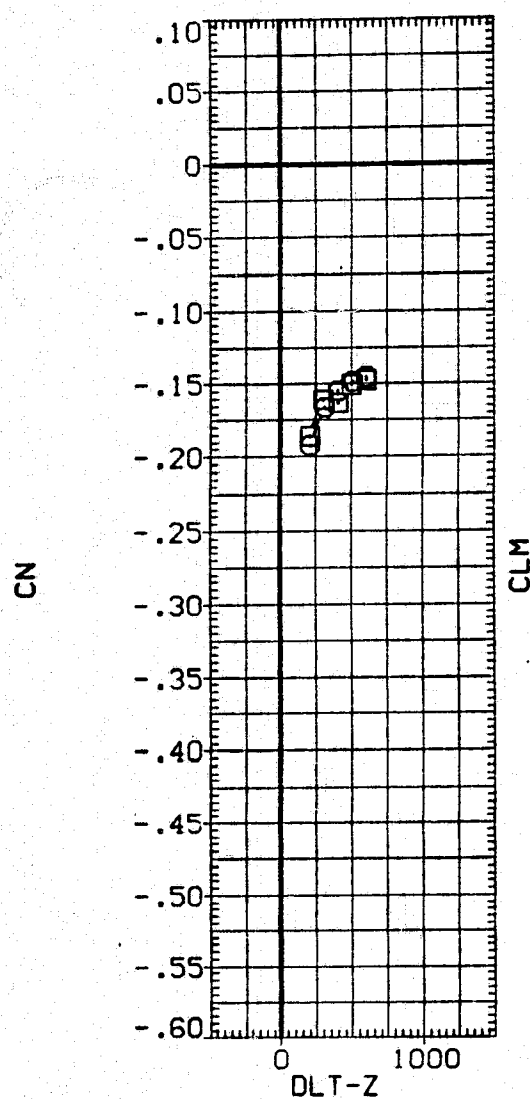


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO33)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.494	BETA	.000	ALPHA
□	200.560	DLTBTA	3.000	DLTALF
		AILRON	.000	MACH
		GRID	.000	ELEVON
			7.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	415.4000	IN. ZT
SCALE	.0100	

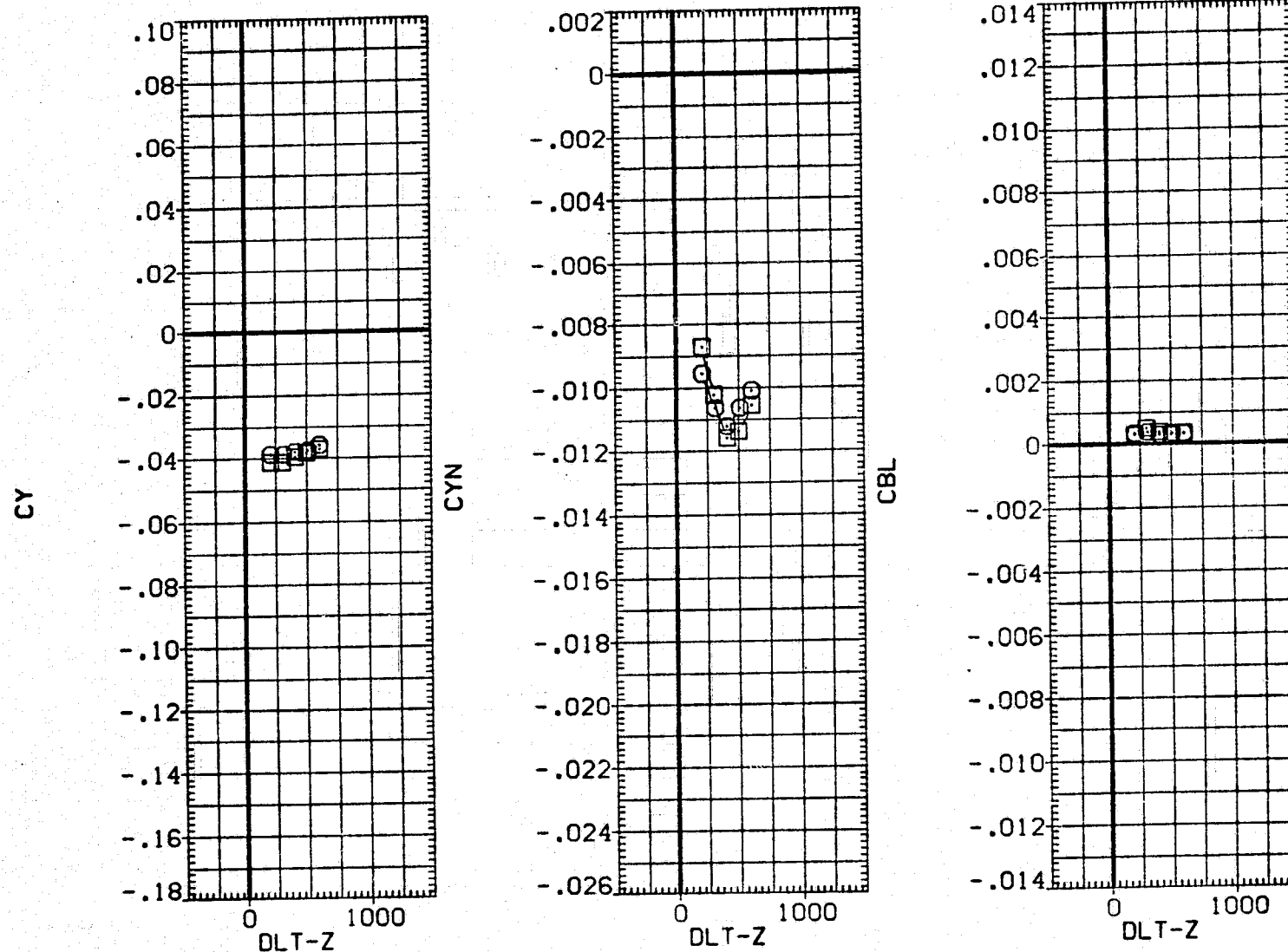


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO34)

SYMBOL		DLT-X	PARAMETRIC VALUES			
○		.470	DLT-Y	.000	ALPHA	-5.000
□		200.470	BETA	3.000	DLTALF	-10.000
◇		400.470	DLTBTA	.000	MACH	5.930
			AIRLON	.000	ELEVON	.000
			GRID	7.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

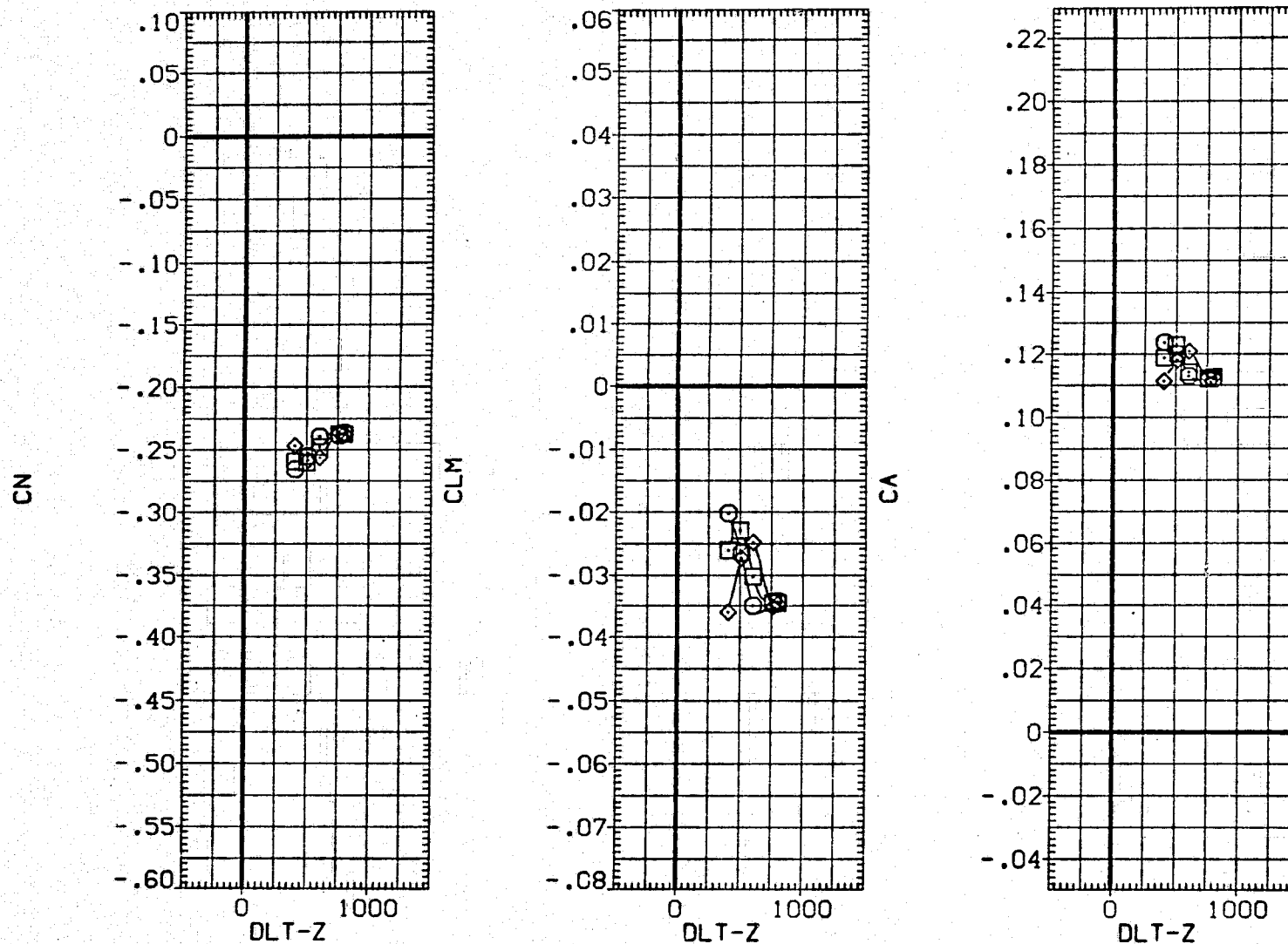


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO34)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.470		.000	-5.000		
□	200.470		3.000	-10.000		
◇	400.470		.000	5.930		
		DLTBT	.000			
		AILRON	.000			
		GRID	7.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

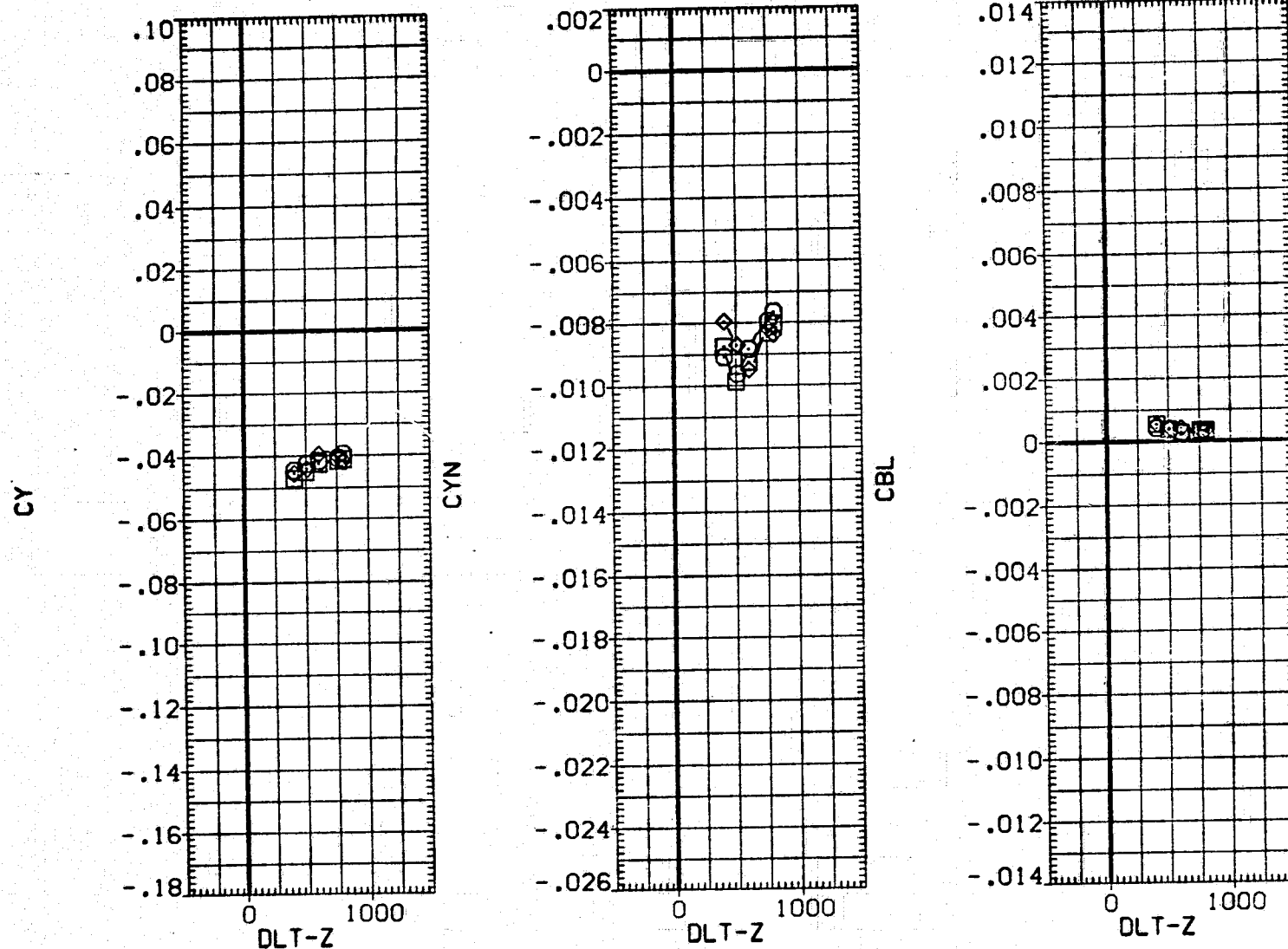


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO35)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	BETA	DLTBT	AILRON	GRID	
○	.447	.000	.000	.000	.000	ALPHA
□	200.540	3.000	.000	.000	.000	DLTALF
◇	400.470	.000	.000	.000	.000	MACH
						ELEVON

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

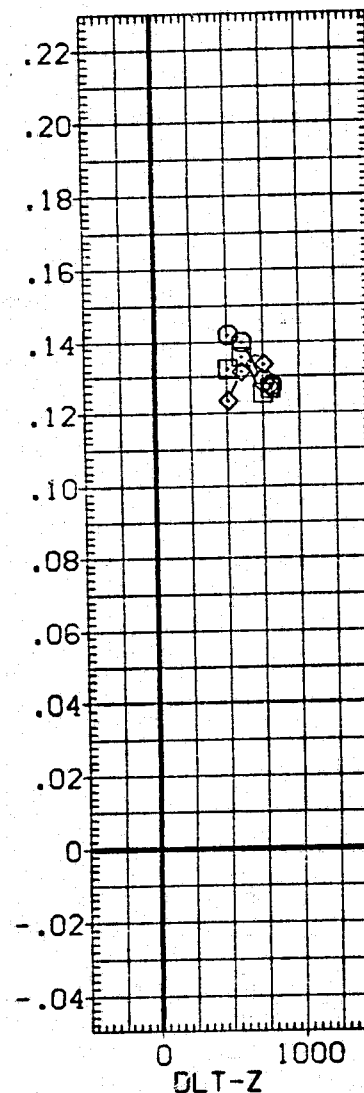
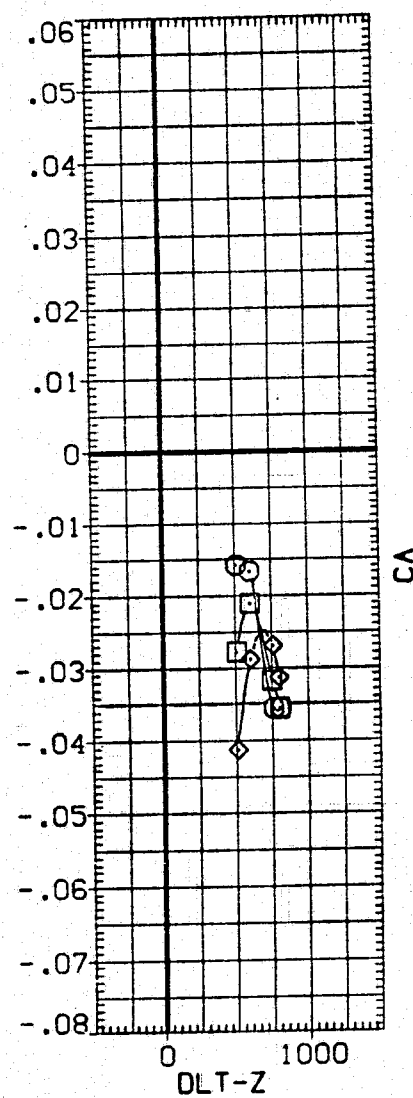
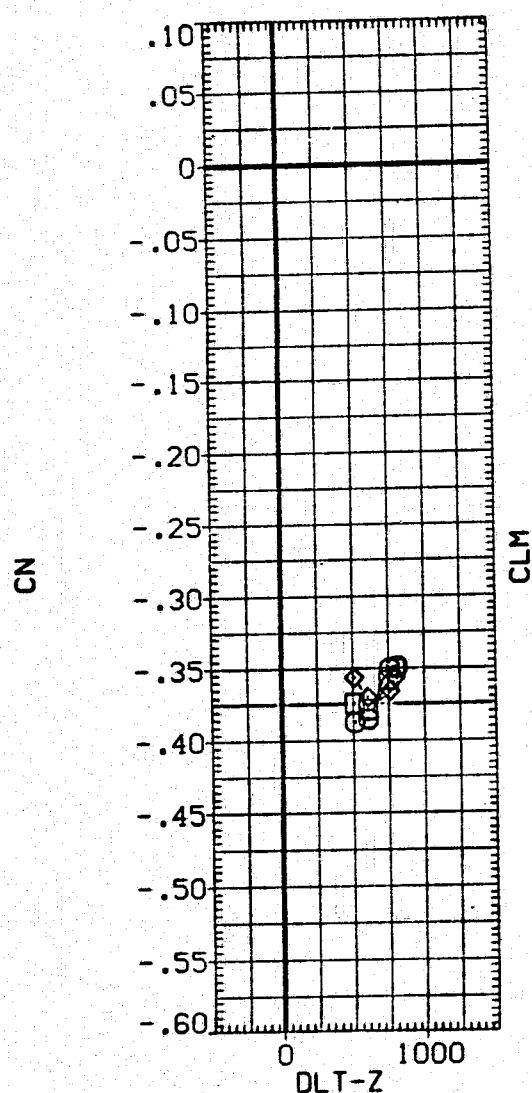


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO35)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.447	.000	DLTALF	-5.000	
□	200.540	3.000	MACH	5.930	
◇	400.470	.000	ELEVON	.000	
		7.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

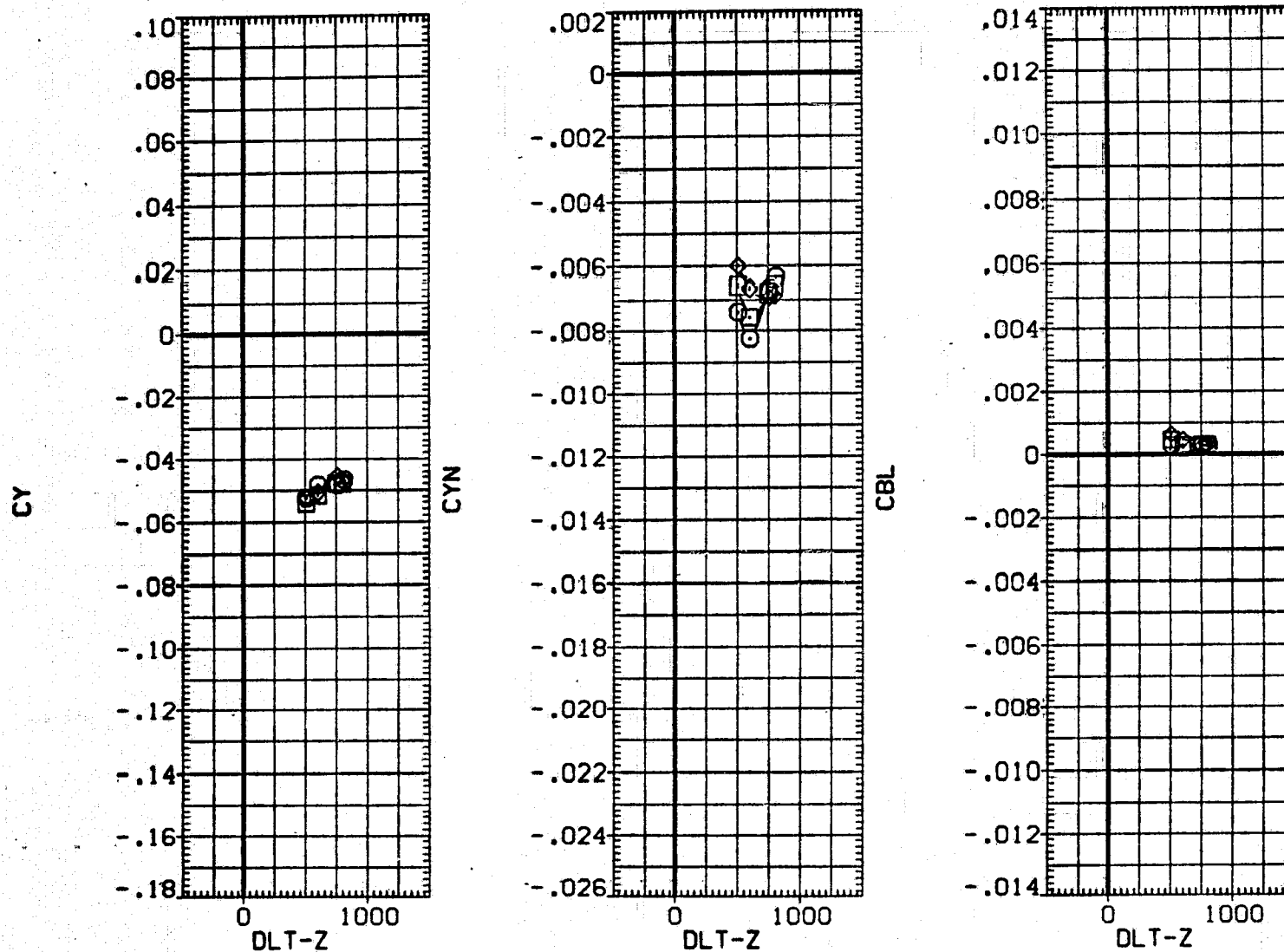


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO37)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.489	200.370	.000	-5.000
□	200.370	400.450	3.000	-20.000
◇	400.450		.000	5.930
			.000	.000
			7.000	

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

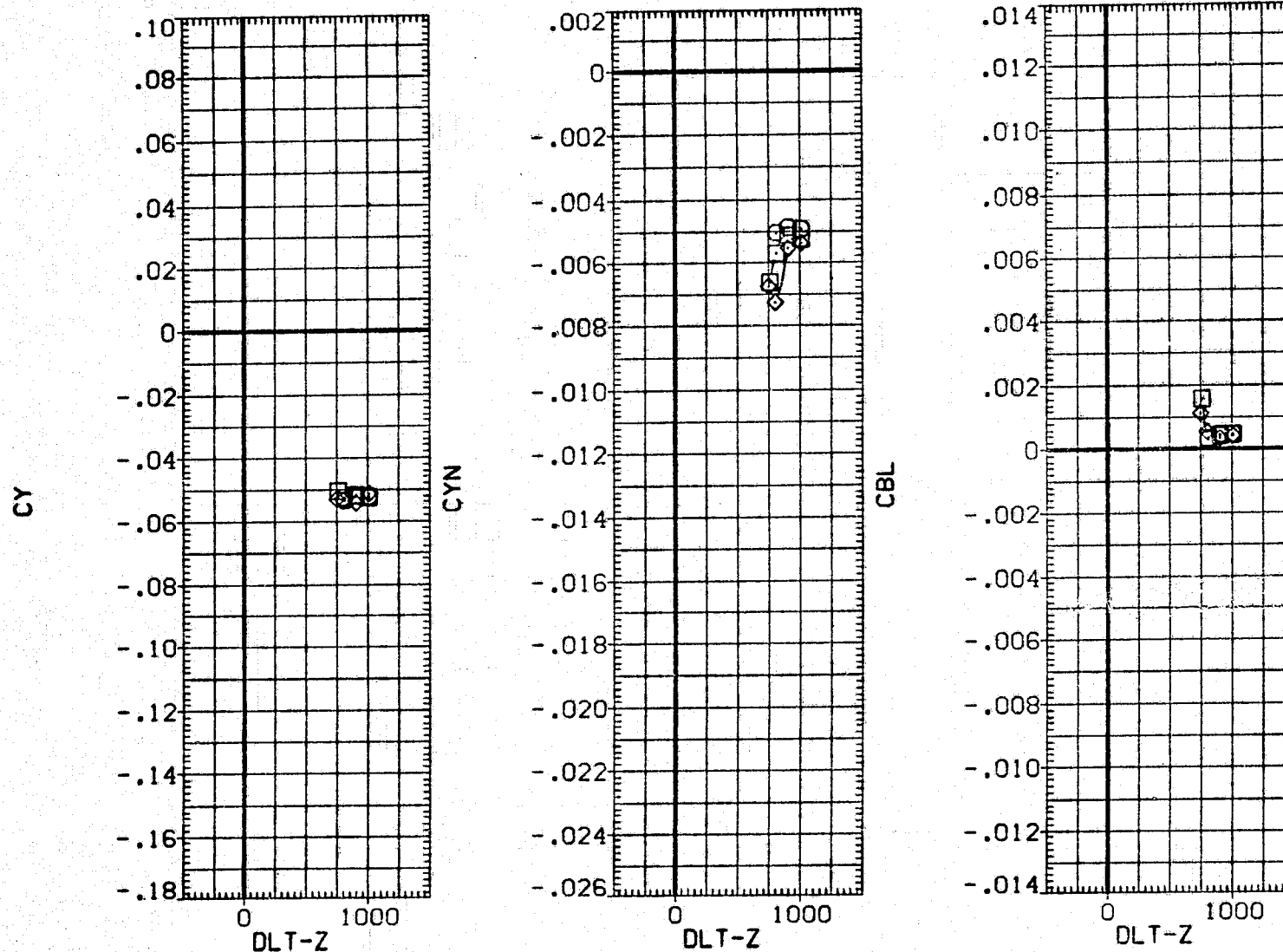


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR114)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.657		ALPHA	10.000
□	200.590	BETA	DLTALF	-5.000
		DLTBTA	MACH	5.930
		AILRON	ELEVON	.000
		GRID		23.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

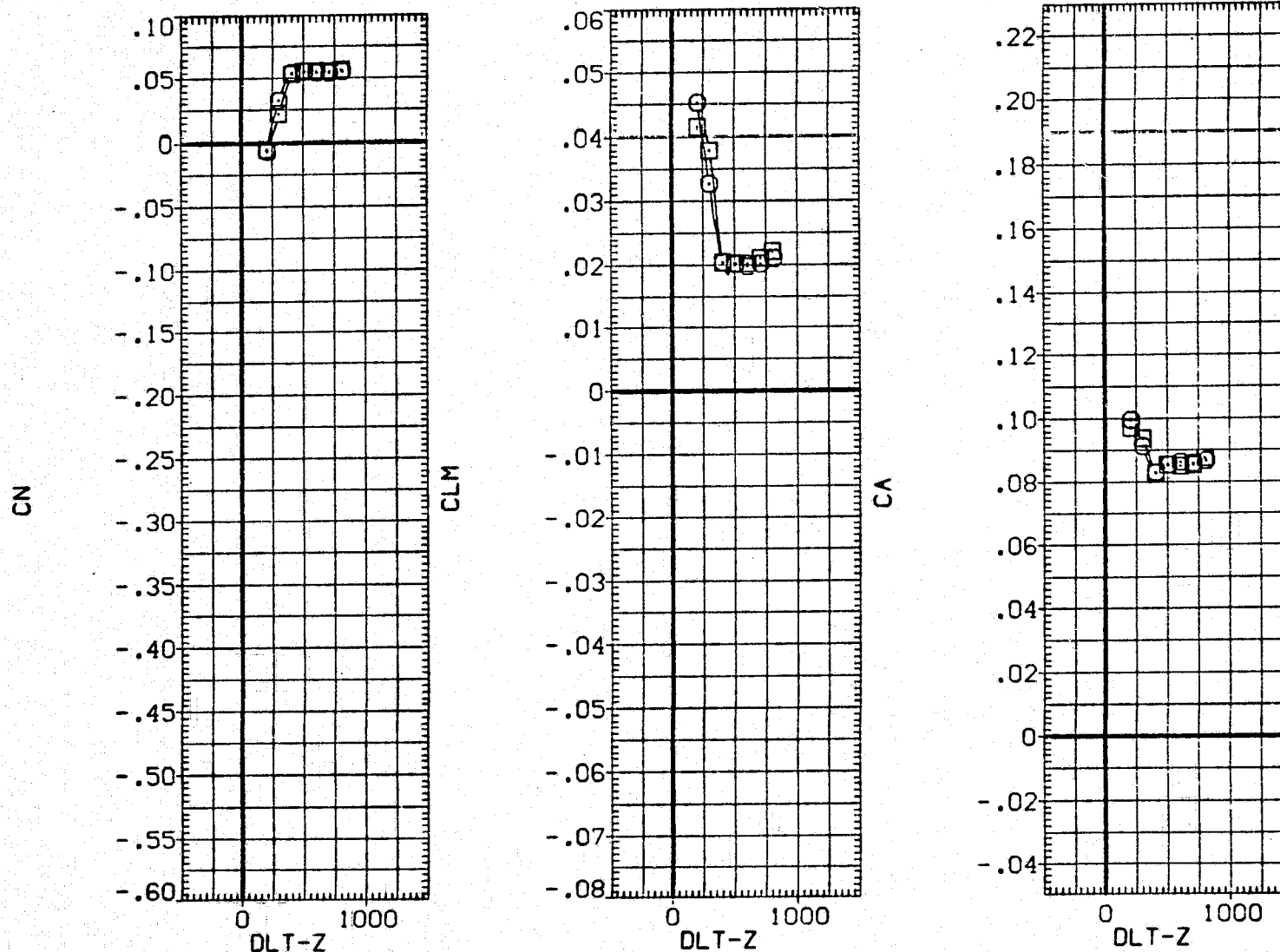
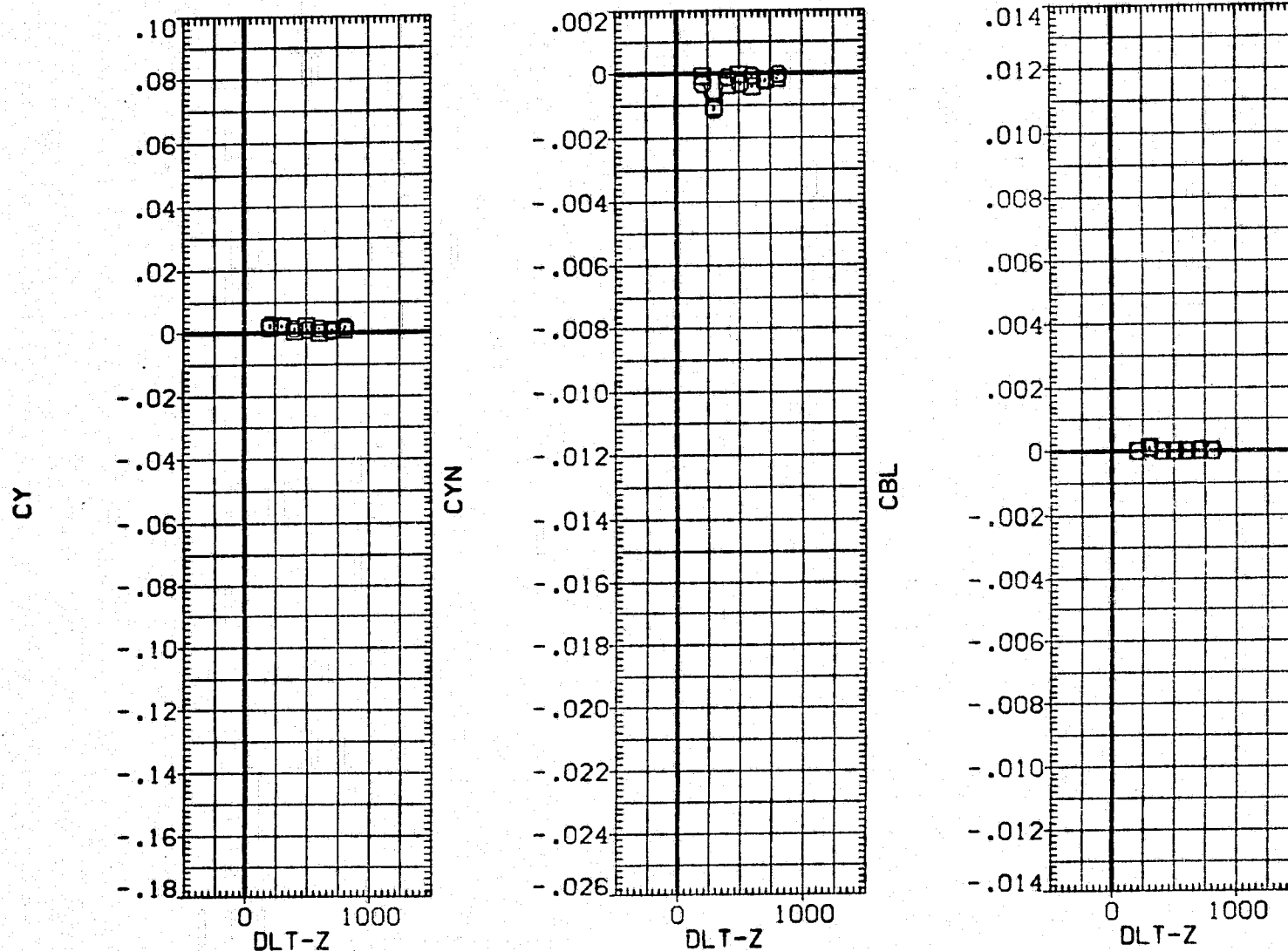


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

SYMBOL		DLT-X		DLT-Y		PARAMETRIC VALUES	
<input type="radio"/>		.657		.000	ALPHA	10.000	
<input type="checkbox"/>	200.590		BETA	.000	DLTALF	-5.000	
			DLTBT A	.000	MACH	5.930	
			AIRLRN	.000	ELEVON	.000	
			GRID	23.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	



PAGE 748

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR115)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.472	.000	10.000	-10.000	5.930	.000
□	200.490	BETA	.000			
◇	400.480	DLTBT	.000			
		AILRON	.000			
		GRID	23.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

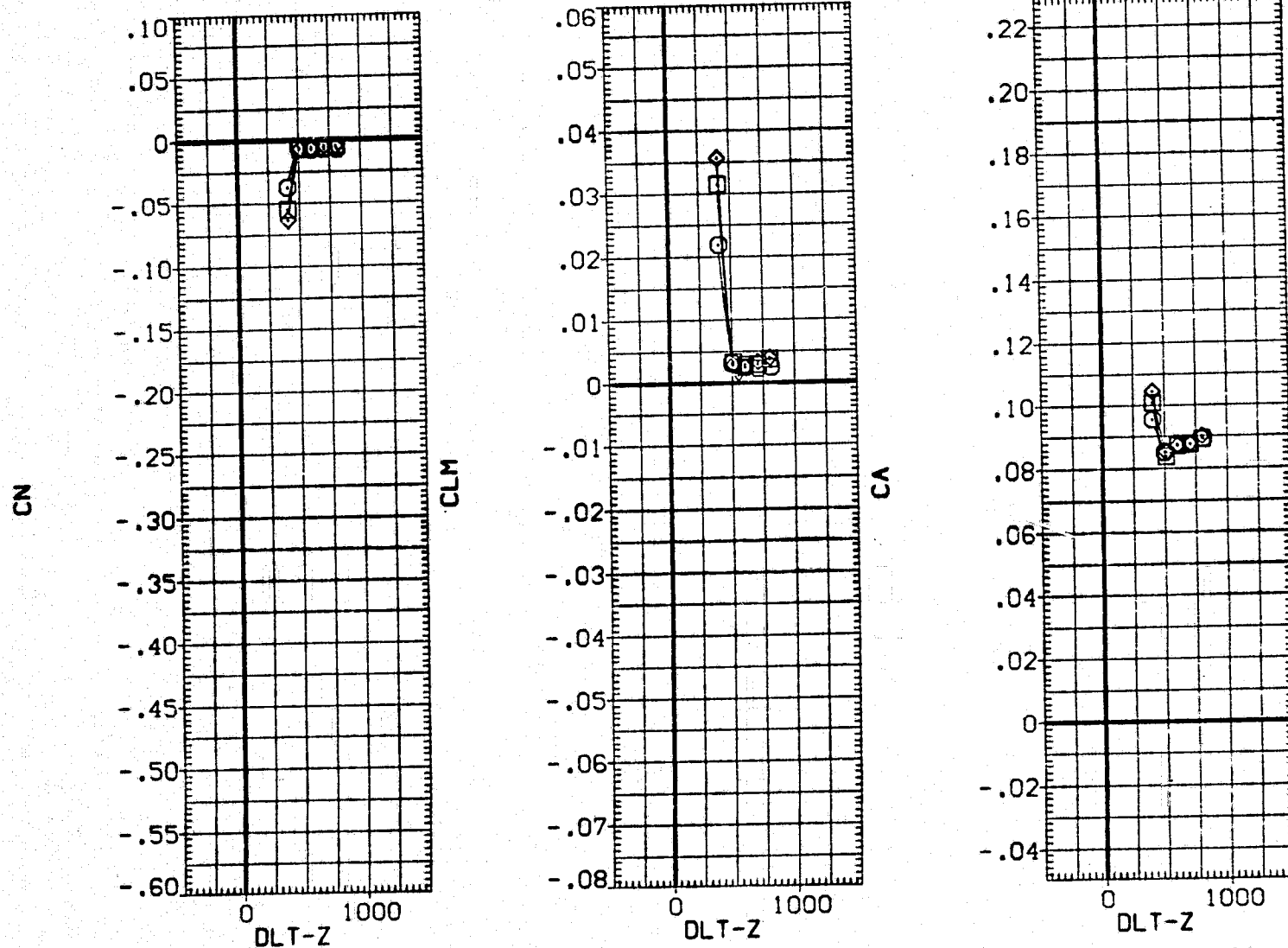


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR115)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.472	.000	ALPHA	10.000
□	200.490	.000	DLTALF	-10.000
◇	400.480	.000	MACH	5.930
		.000	ELEVON	.000
		GRID	23.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

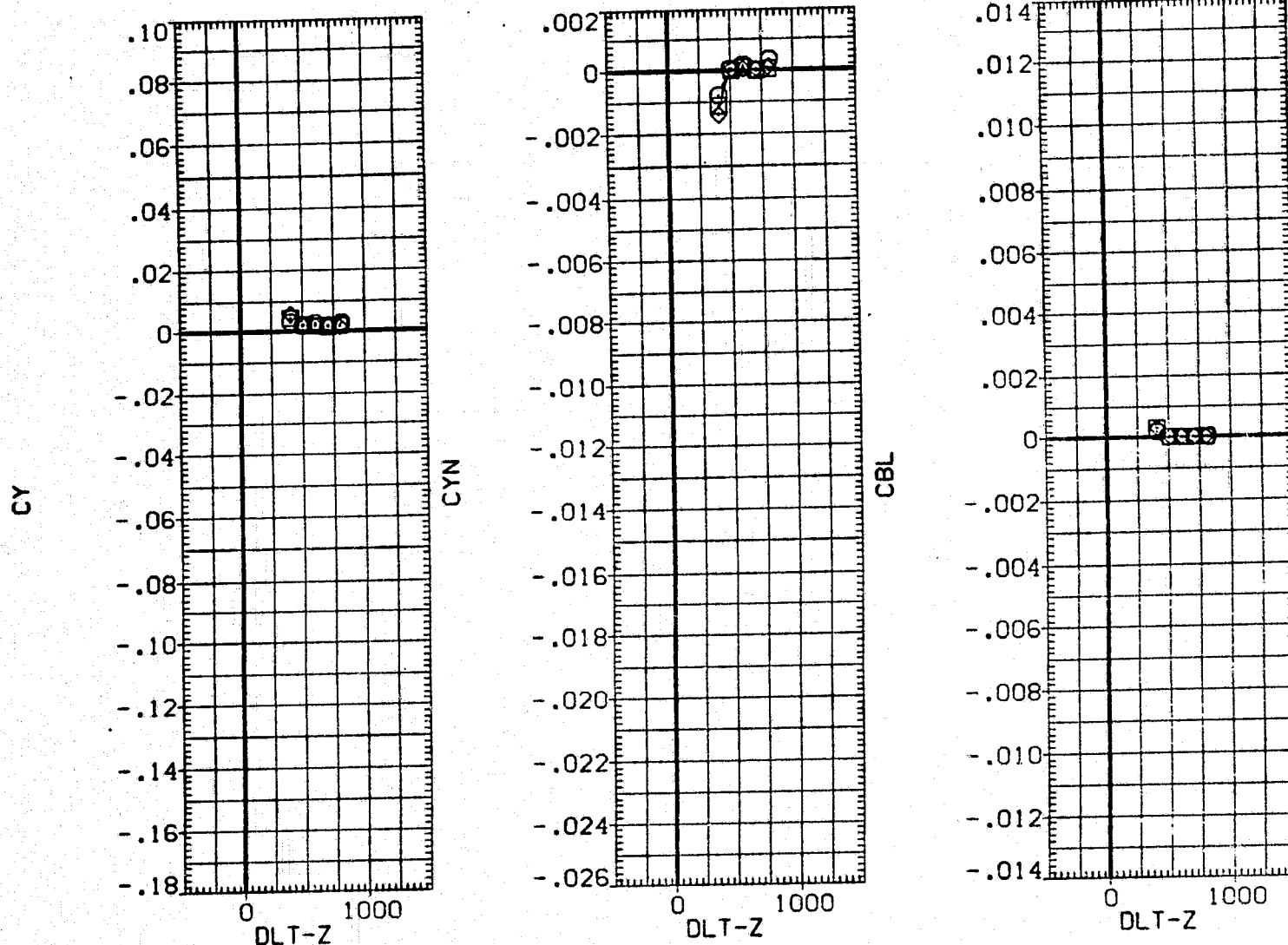


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR116)

SYMBOL		PARAMETRIC VALUES			
<div style="display: flex; flex-direction: column; align-items: center;"> <div>□</div> <div>○</div> <div>◇</div> </div>	DLT-X				
	.442	DLT-Y	.000	ALPHA	10.000
	200.560	BETA	.000	DLTALF	-15.000
	400.450	DLTBTA	.000	MACH	5.930
		AIRLRN	.000	ELEVON	.000
	GRID	23.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

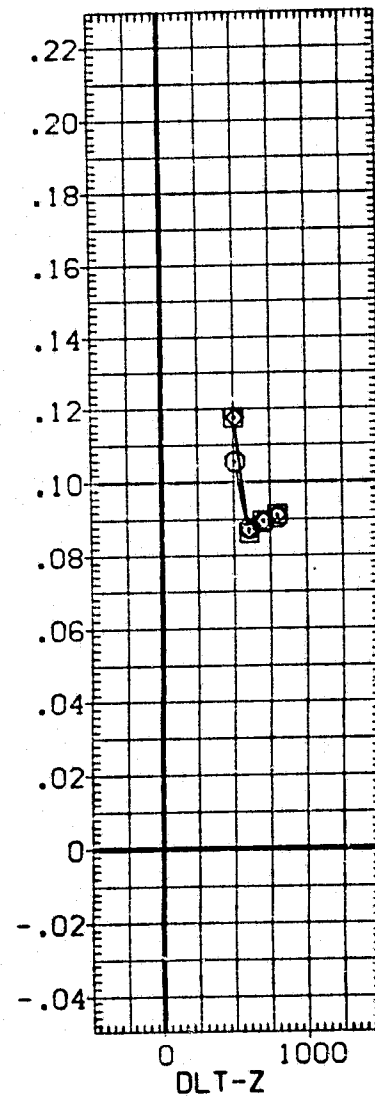
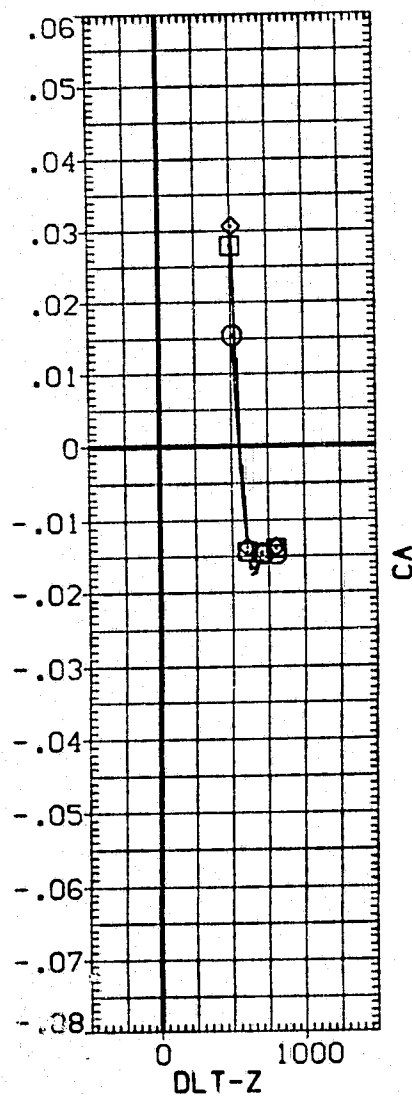
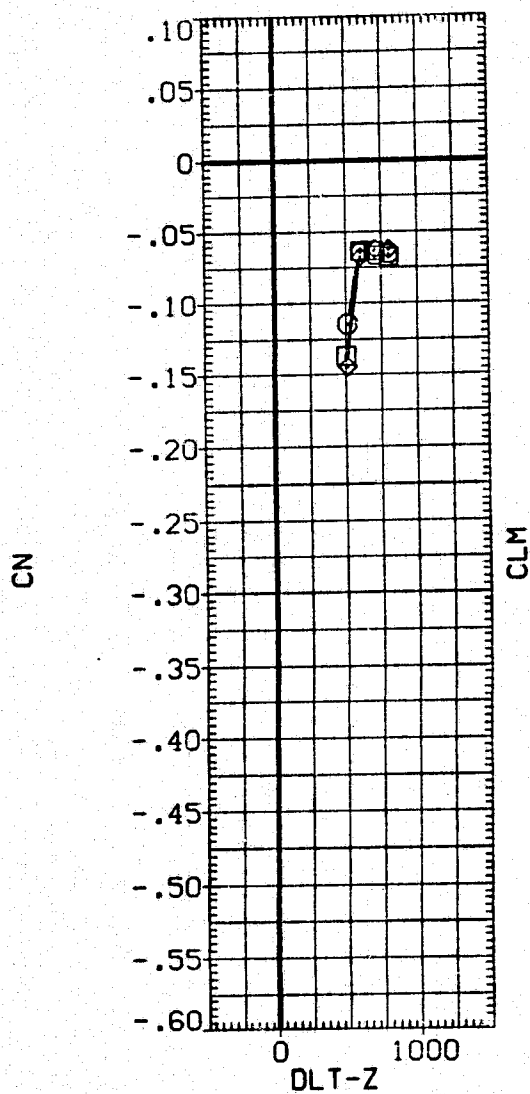


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS ($\Delta Y=0$, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR116)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.442	.000	DLTALF	10.000
□	200.560	BETA	.000	-15.000
◇	400.450	DLTBTA	.000	MACH
		AILRON	.000	5.930
		GRID	23.000	ELEVON
				.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

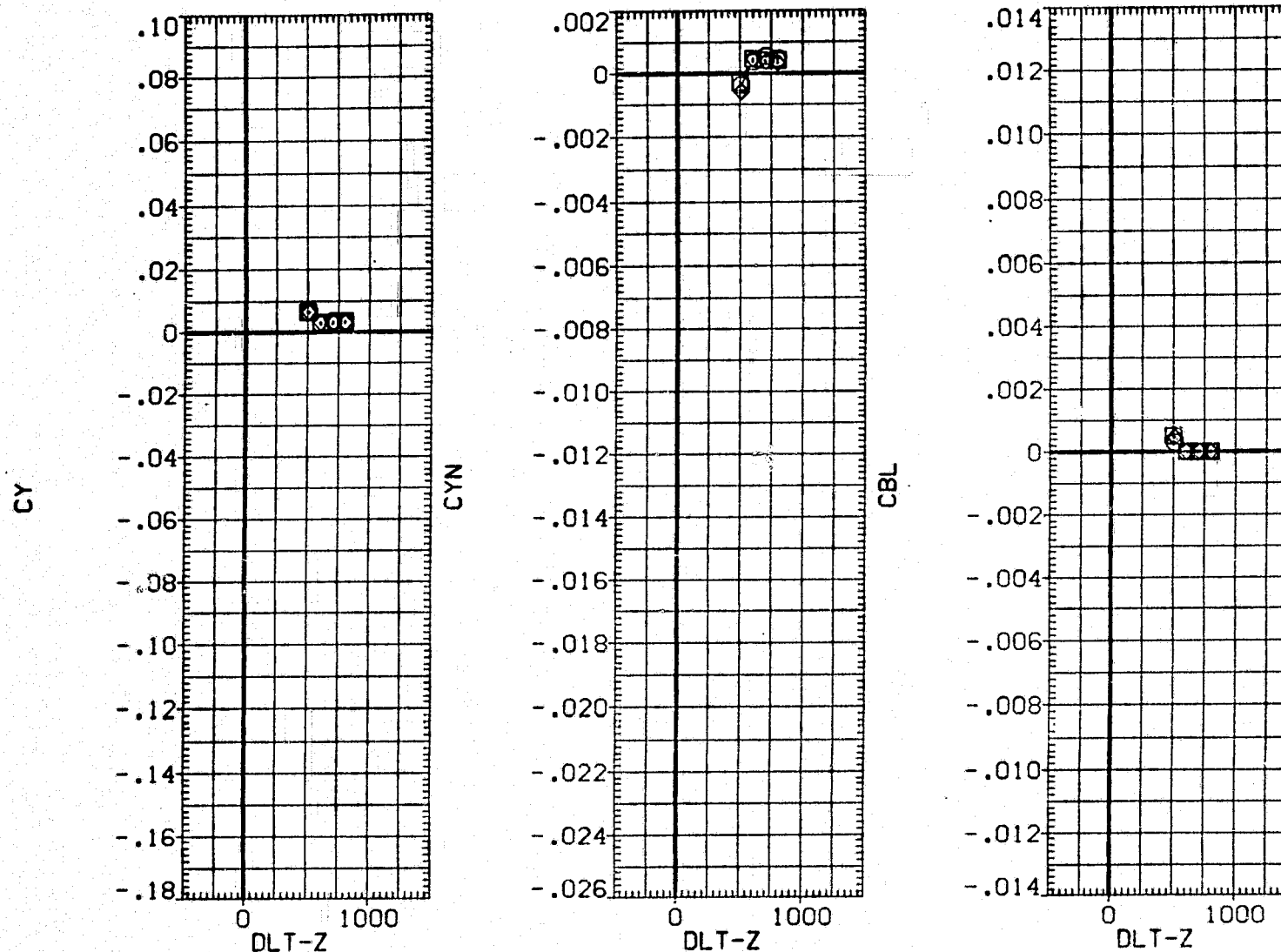


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR117)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.486	.000	ALPHA	10.000
□	200.550	.000	DLTALF	-20.000
◇	400.470	.000	MACH	5.930
		.000	ELEVON	.000
		23.000	GRID	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

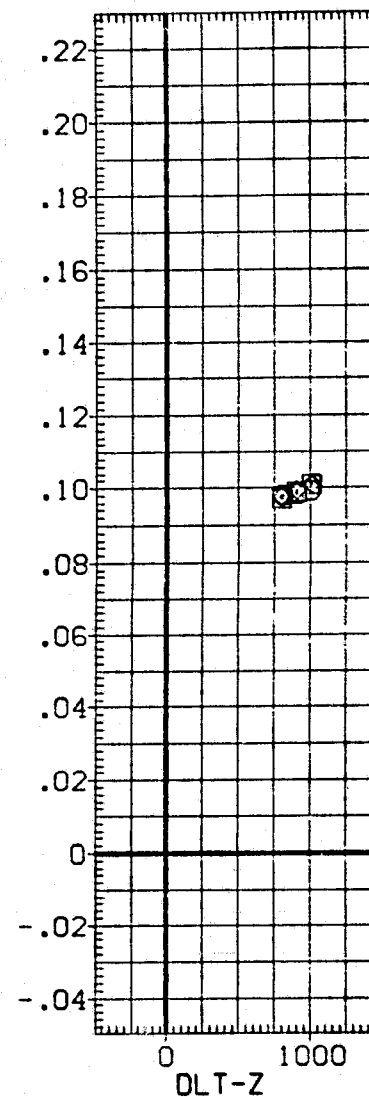
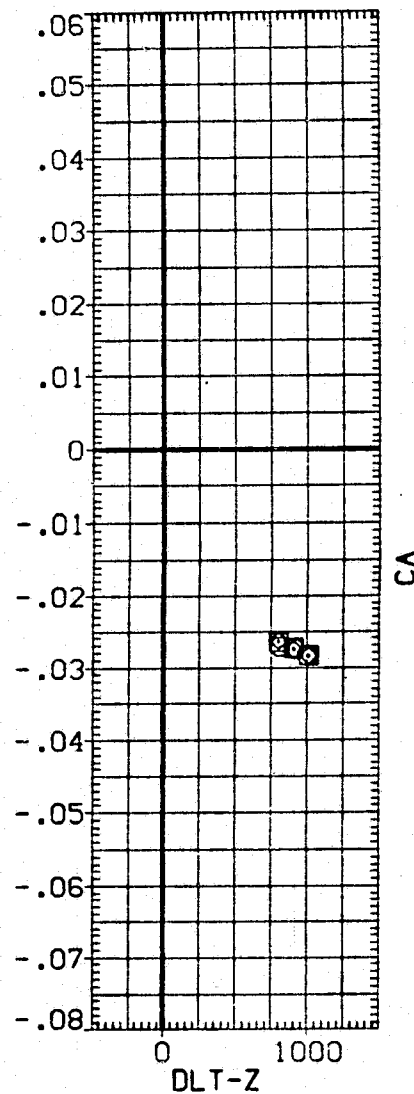
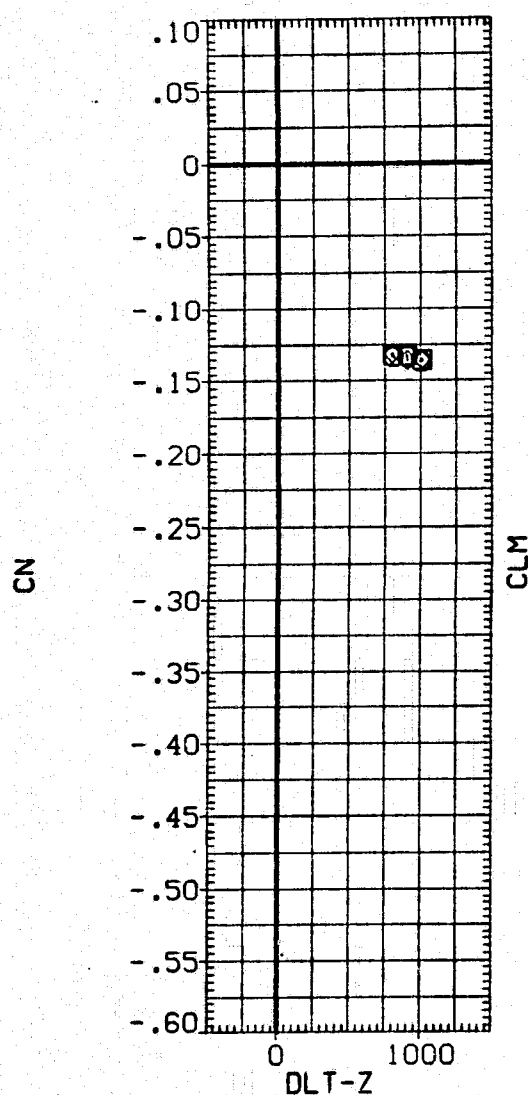


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR117)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.486	.000	ALPHA	10.000
□	200.550	.000	DLTALF	-20.000
◇	400.470	.000	MACH	5.930
		.000	ELEVON	.000
		GRID	23.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

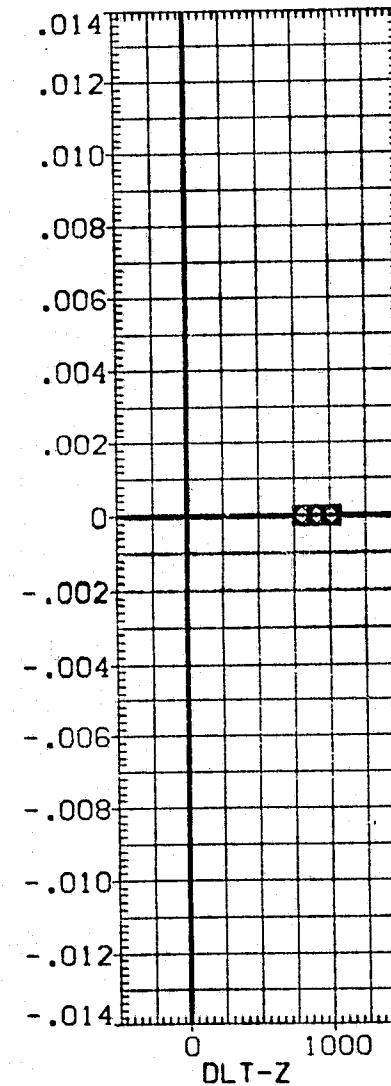
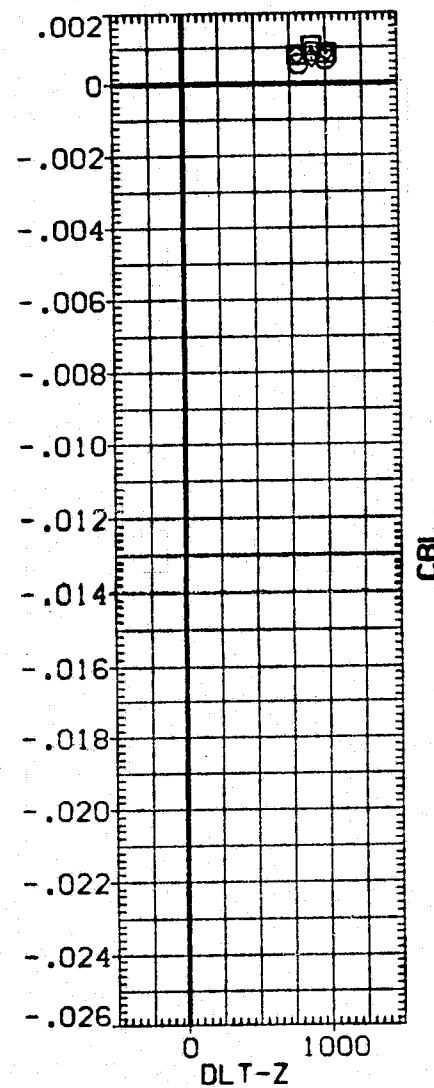
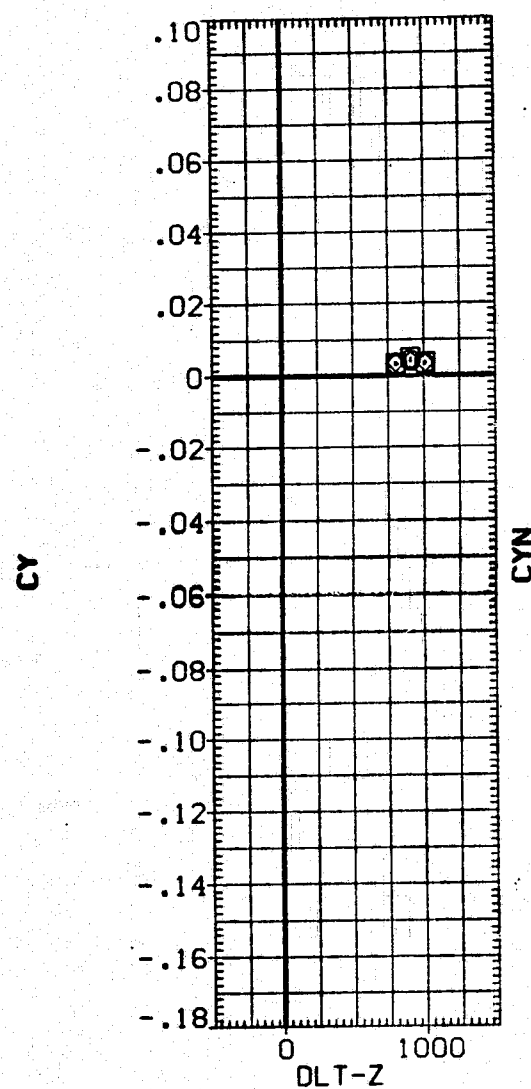


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR118)

SYMBOL	DLT-X	DLT-Y	BETA	DLTBT	AILRON	GRID	PARAMETRIC VALUES	ALPHA	DLTALF	MACH	ELEVON
○	.604	.000	3.000	.000	.000	27.000	10.000	-5.000	5.930	.000	
□	200.460										

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

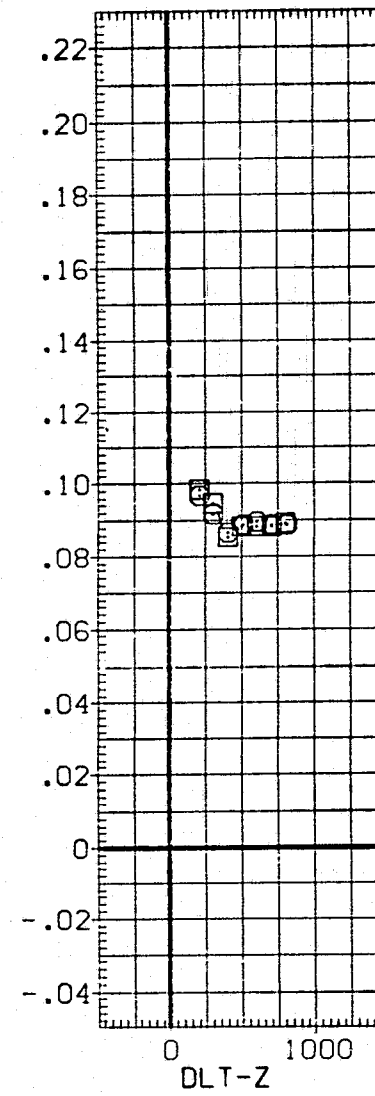
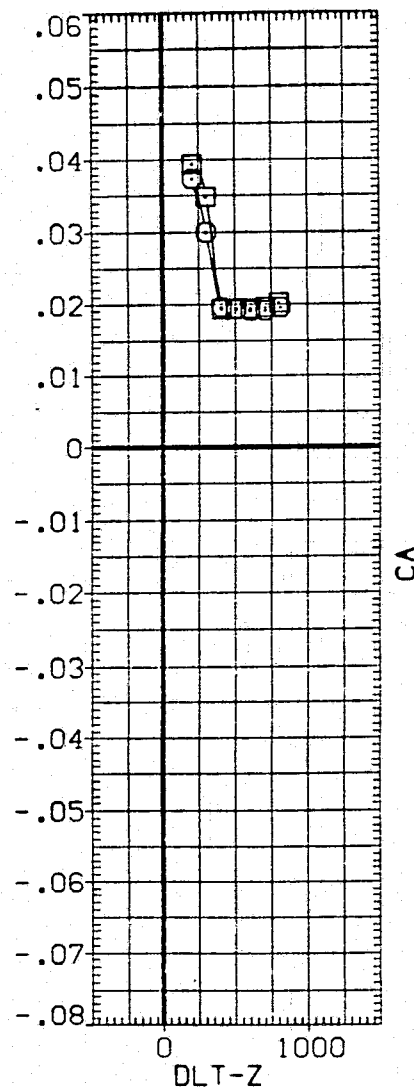
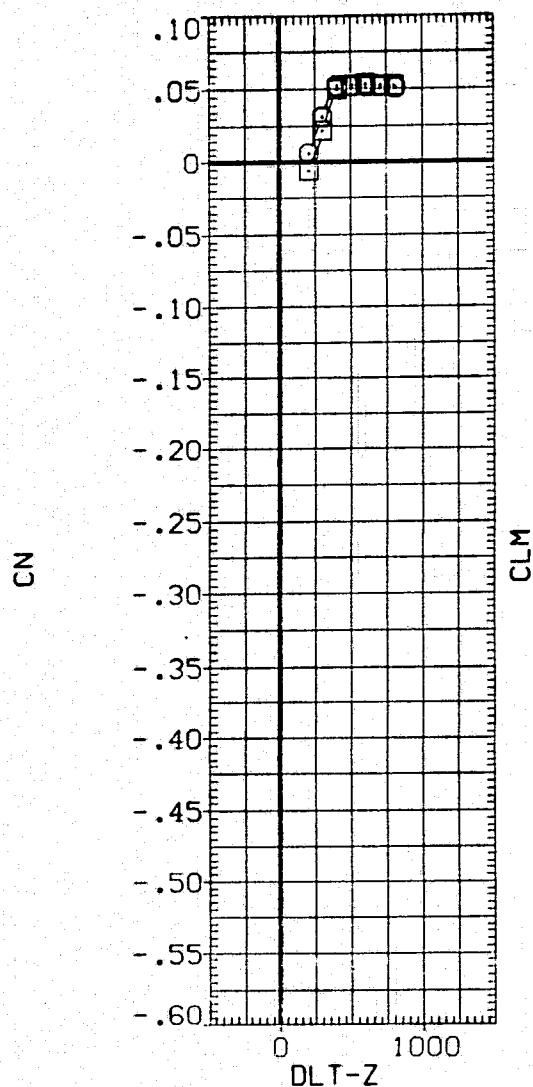


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR118)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.604		.000	ALPHA
□	200.460	BETA	3.000	DLTALF
		DLTBTA	.000	MACH
		AILRON	.000	ELEVON
		GRID	27.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

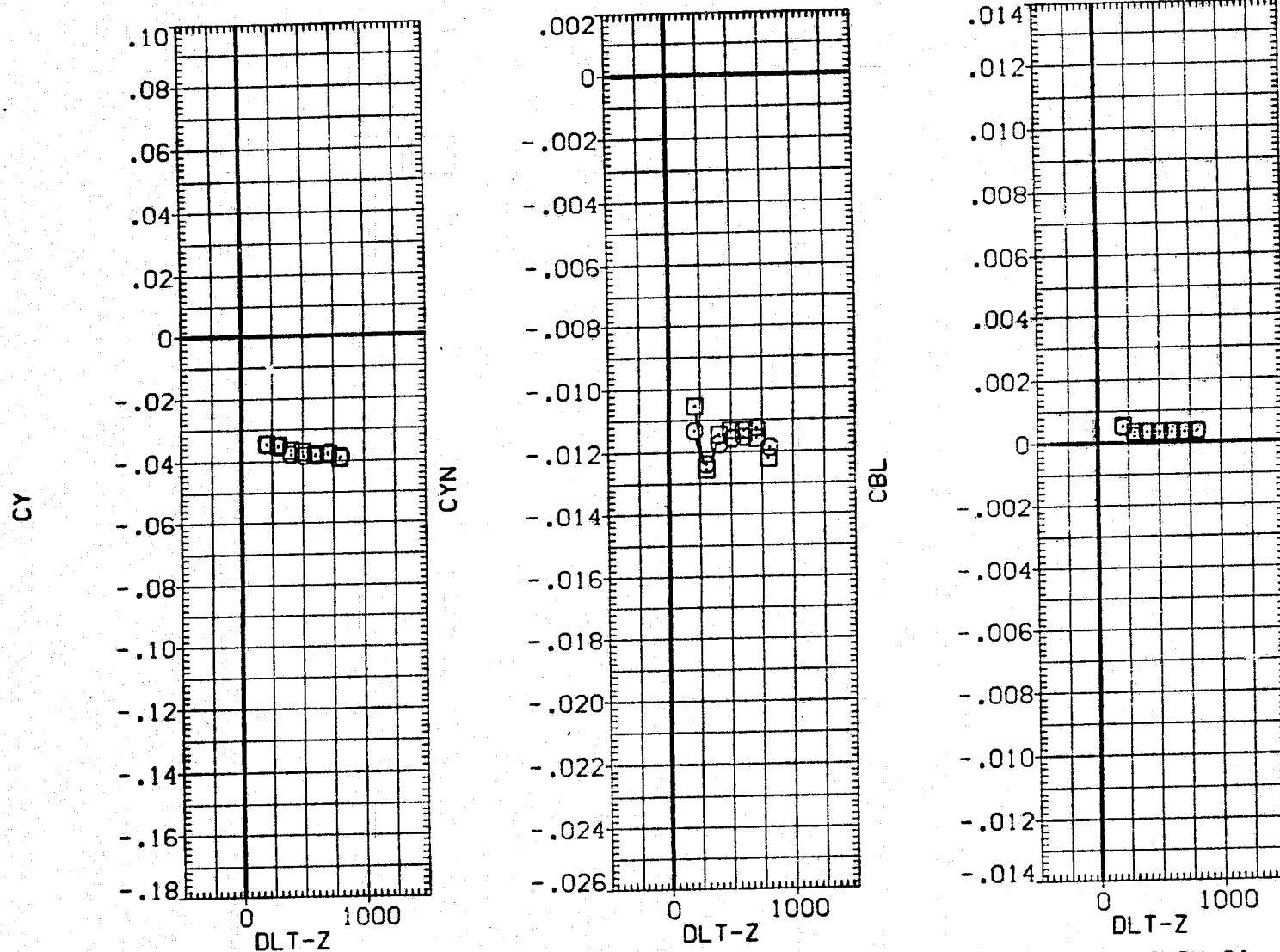


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR119)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	ALPHA	
○	.453	.000	10.000	
□	200.560	BETA	3.000	DLTALF -10.000
◇	400.610	DLTBT	.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	27.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

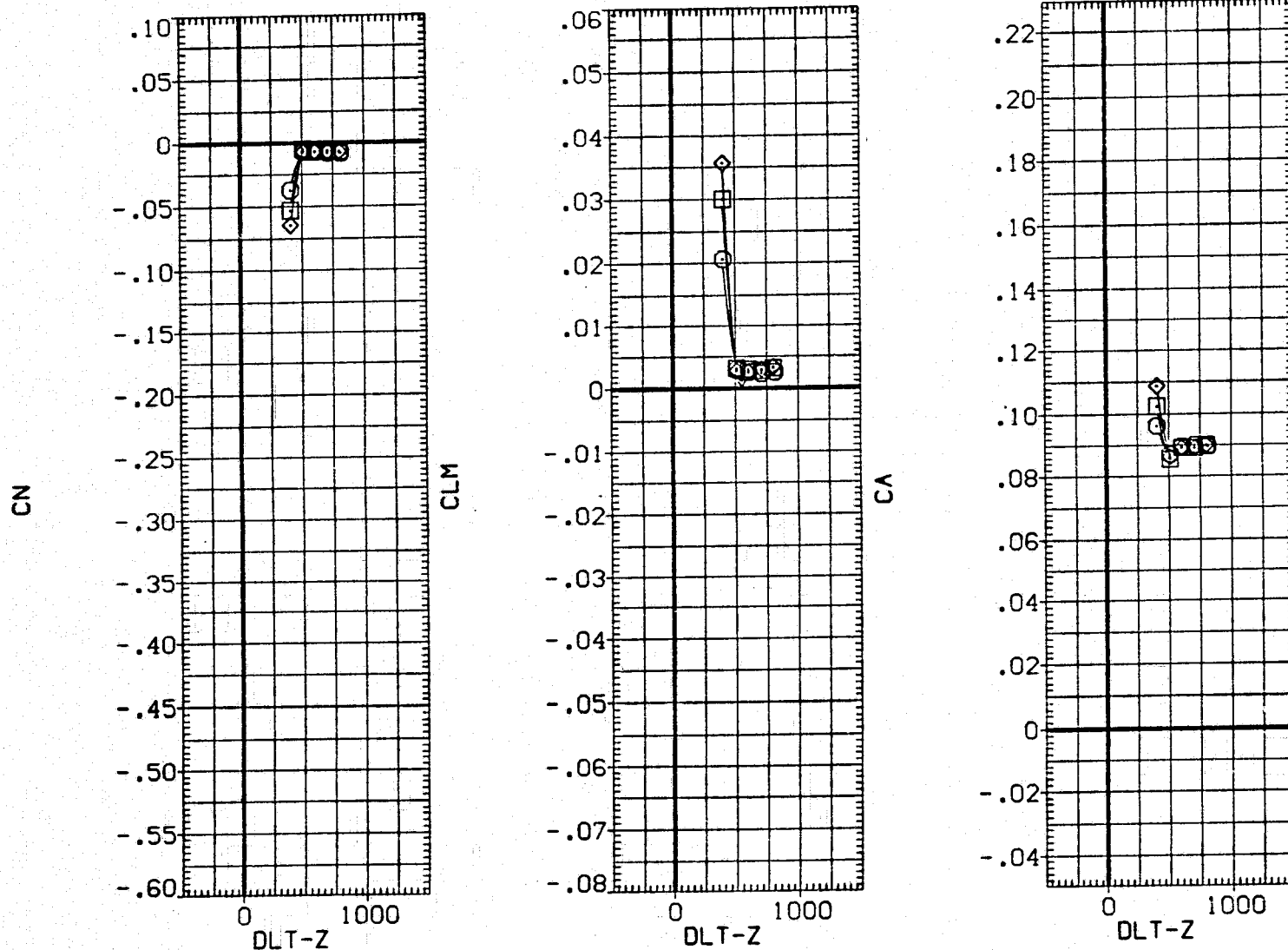


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR119)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.453	.000	ALPHA	10.000
□	200.560	BETA	3.000	DLTALF -10.000
◇	400.610	DLTBTA	.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	27.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

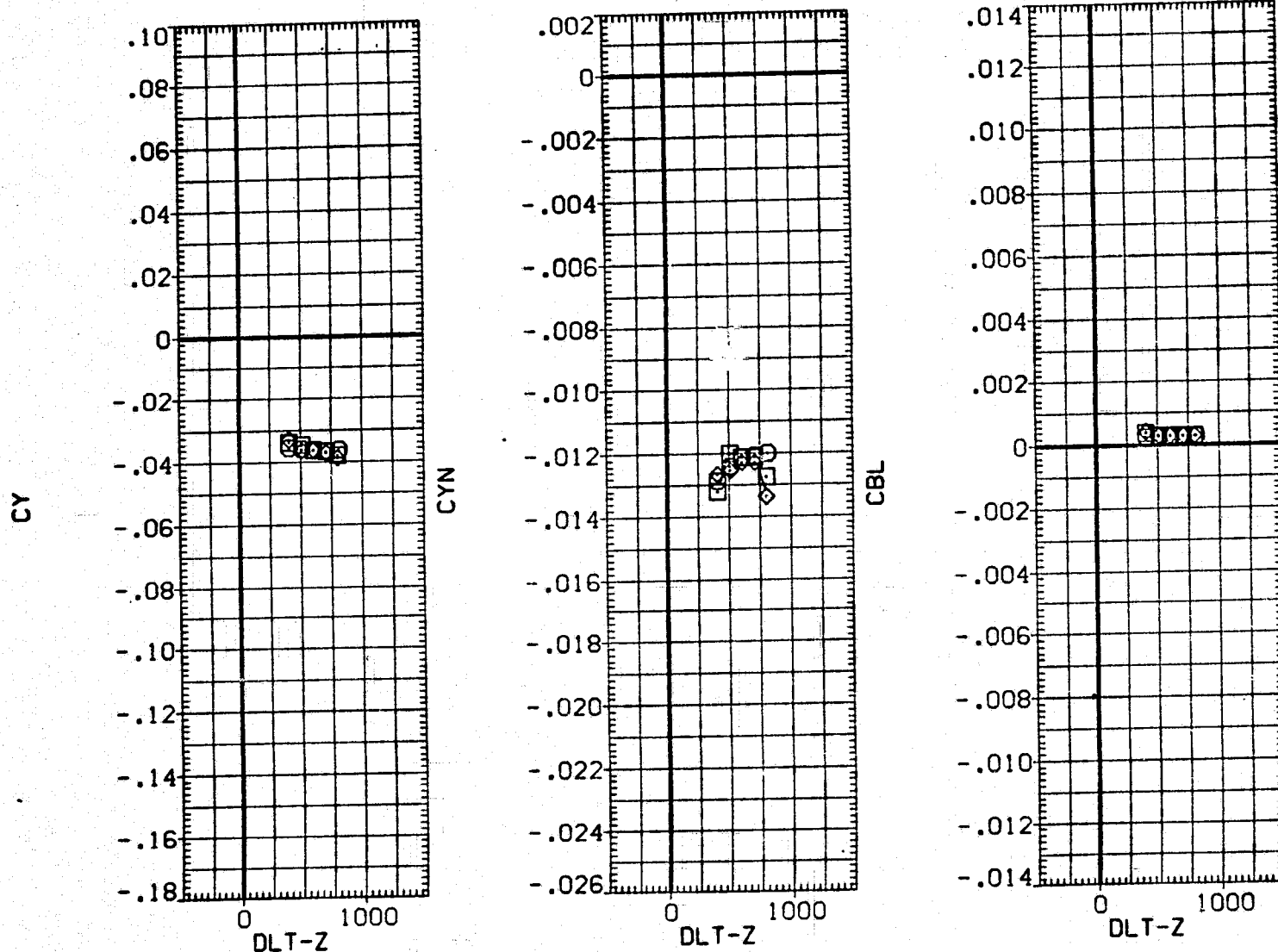


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR120)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
○	.627	.000	10.000		
□	200.670	BETA 3.000	-15.000		
◇	400.400	DLTBT A .000	MACH 5.930		
		AILRON .000	ELEVON .000		
		GRID 27.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

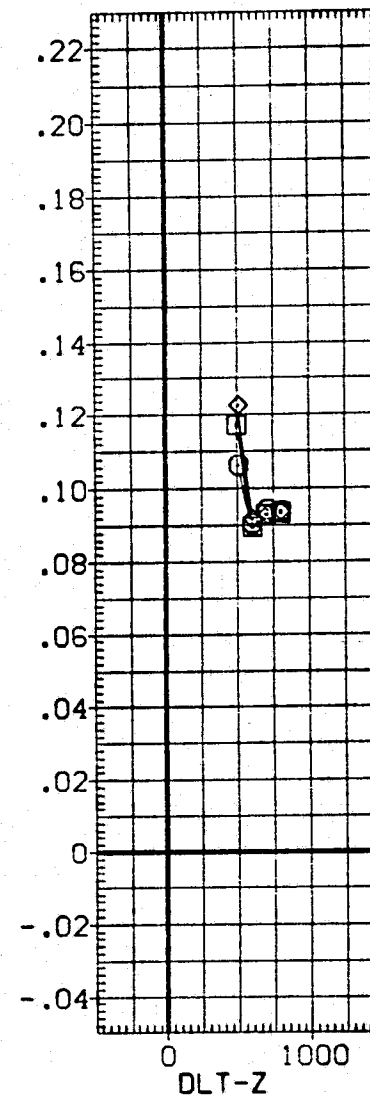
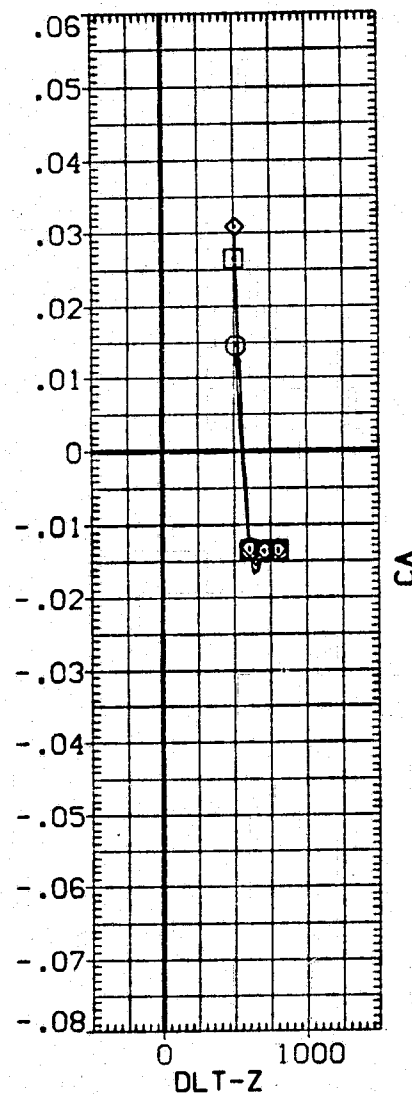
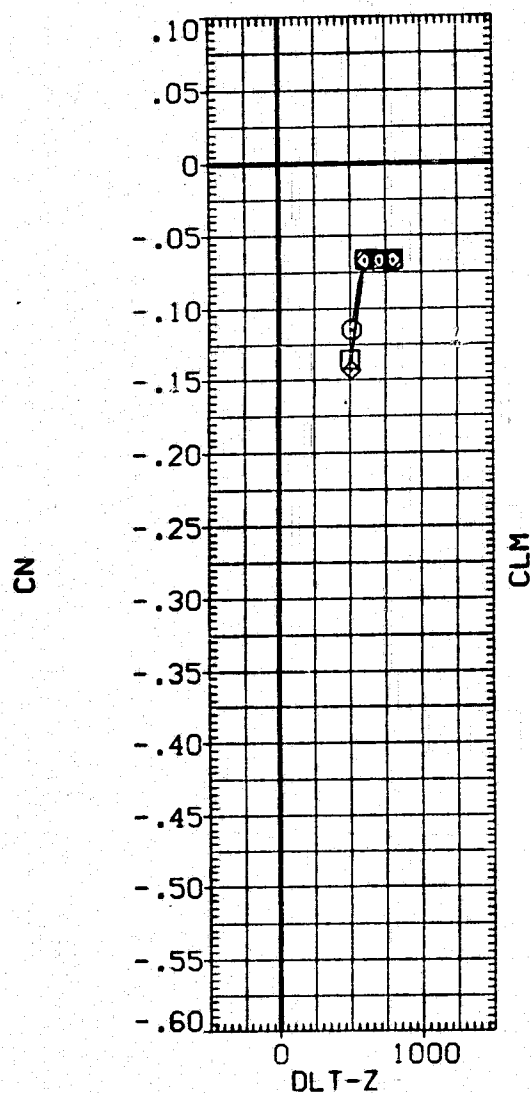


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR120)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.627	.000	10.000	10.000
□	200.670	BETA 3.000	DLTALF -15.000	
◇	400.400	DLTBT A .000	MACH 5.930	
		AILRON .000	ELEVON .000	
		GRID 27.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

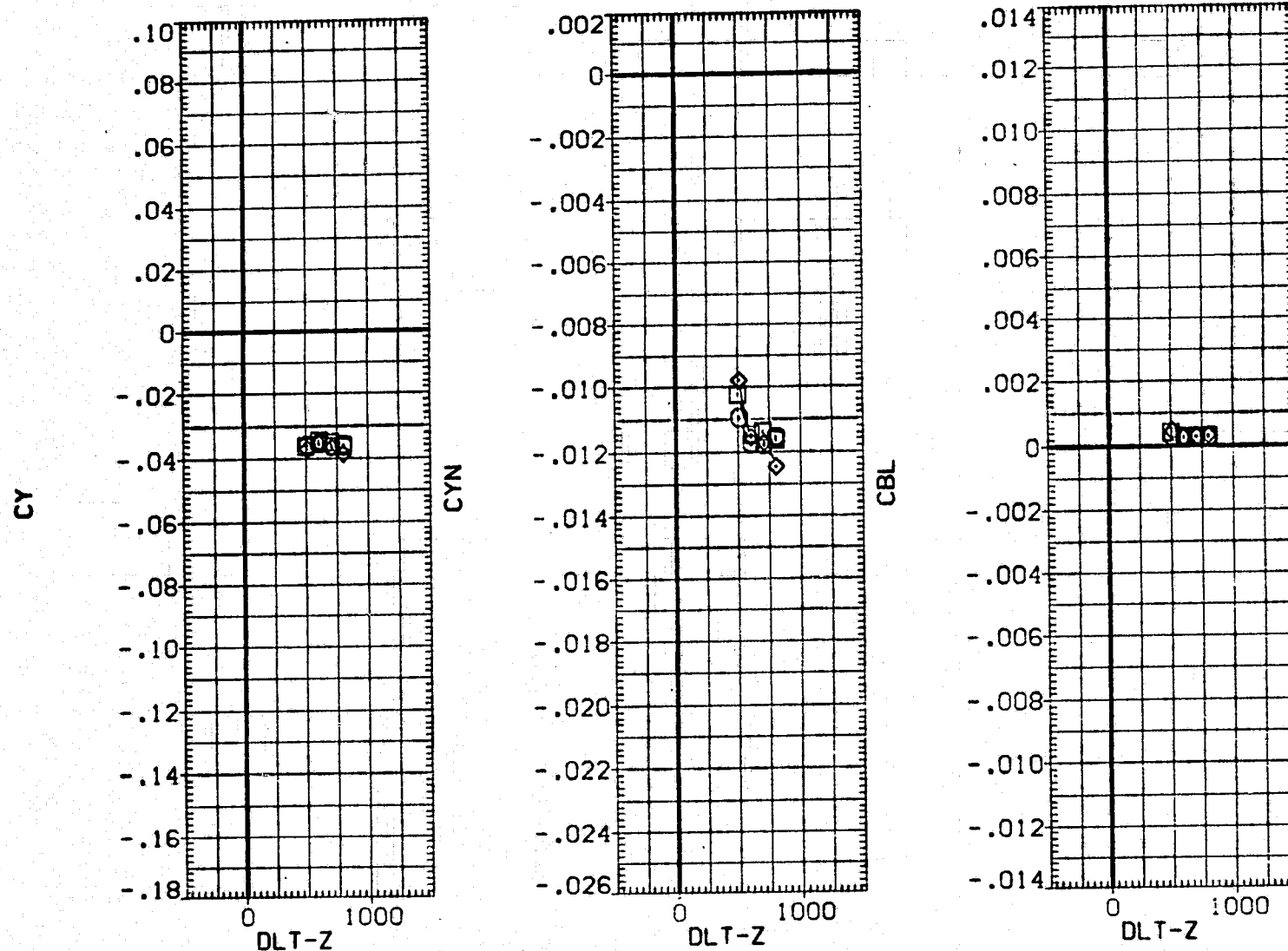


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR121)

SYMBOL	DLT-X		PARAMETRIC VALUES		
○	.536	DLT-Y	.000	ALPHA	10.000
□	200.530	BETA	3.000	DLTALF	-20.000
◇	400.610	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	27.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

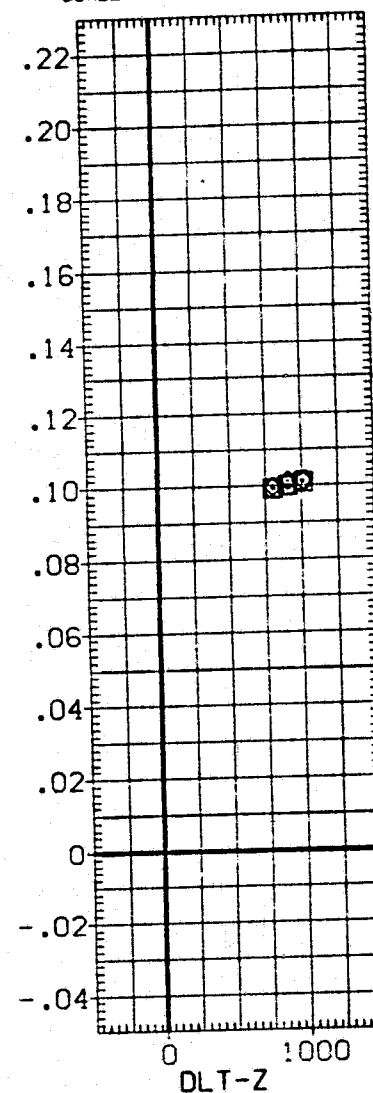
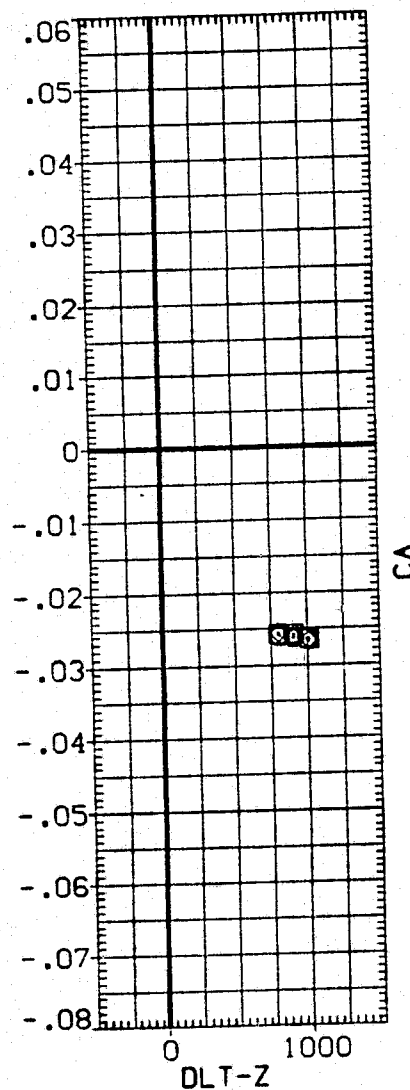
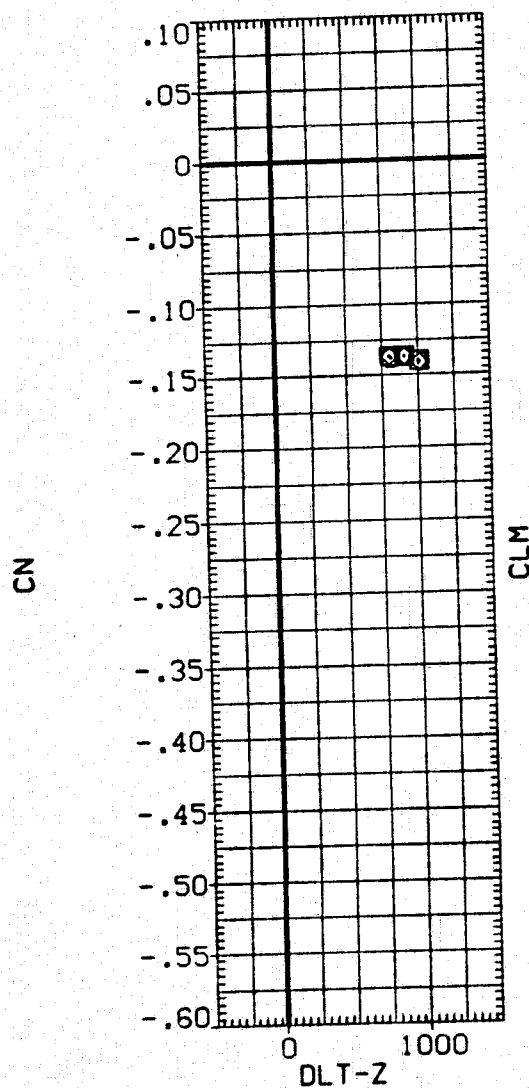


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR121)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	BETA	DLTBT	ALPHA	DLTALF
○	.536	.000	3.000	.000	10.000	-20.000
□	200.530	.000	.000	.000	5.930	.000
◇	400.610	.000	.000	.000	.000	.000
		GRID	27.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

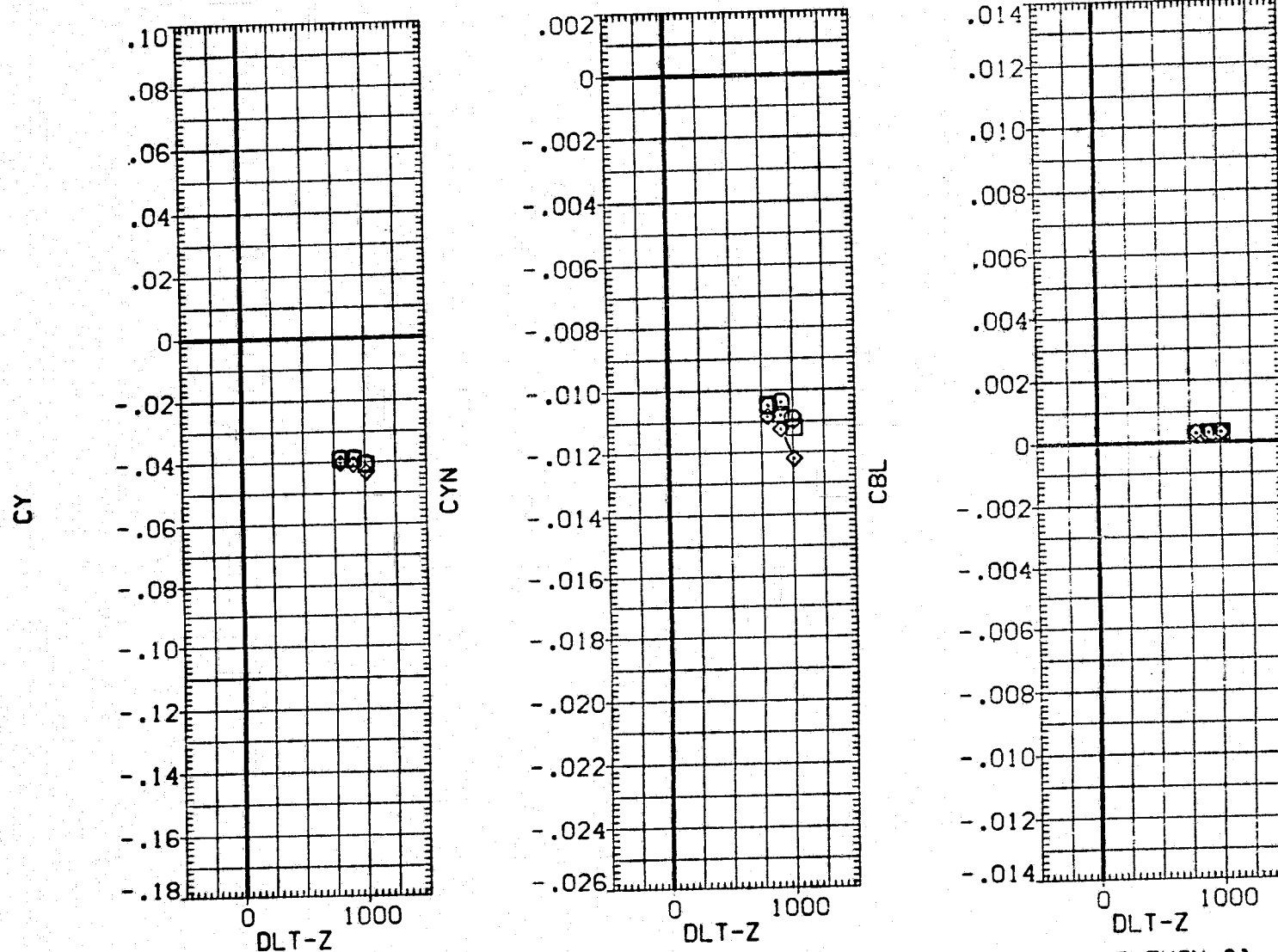


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO42)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.511	.000	ALPHA	-10.000
□	200.500	.000	DLTALF	.000
◇	400.370	.000	MACH	5.930
		.000	ELEVON	.000
		9.000	GRID	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
YMRP	1360.1000 IN. YT
ZMRP	.0000 IN. YT
SCALE	416.4000 IN. ZT

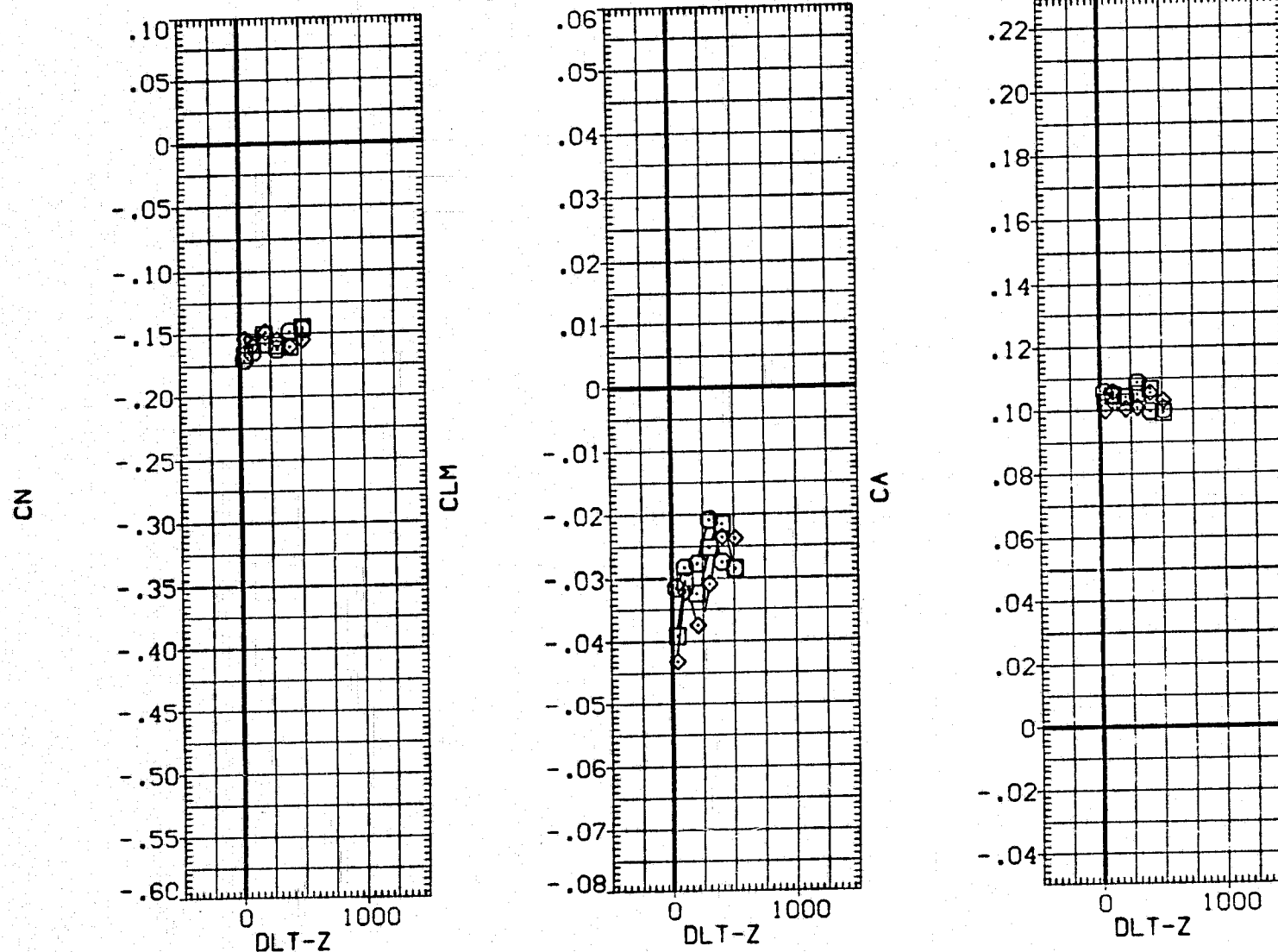


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO42)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.511	.000		-10.000	
□	200.500	.000	DLTALF	.000	
◇	400.370	.000	MACH	5.930	
		.000	ELEVON	.000	
		GRID	9.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRF	1360.1000 IN. XT
YMRF	.0000 IN. YT
ZMRF	416.4000 IN. ZT
SCALE	.0100

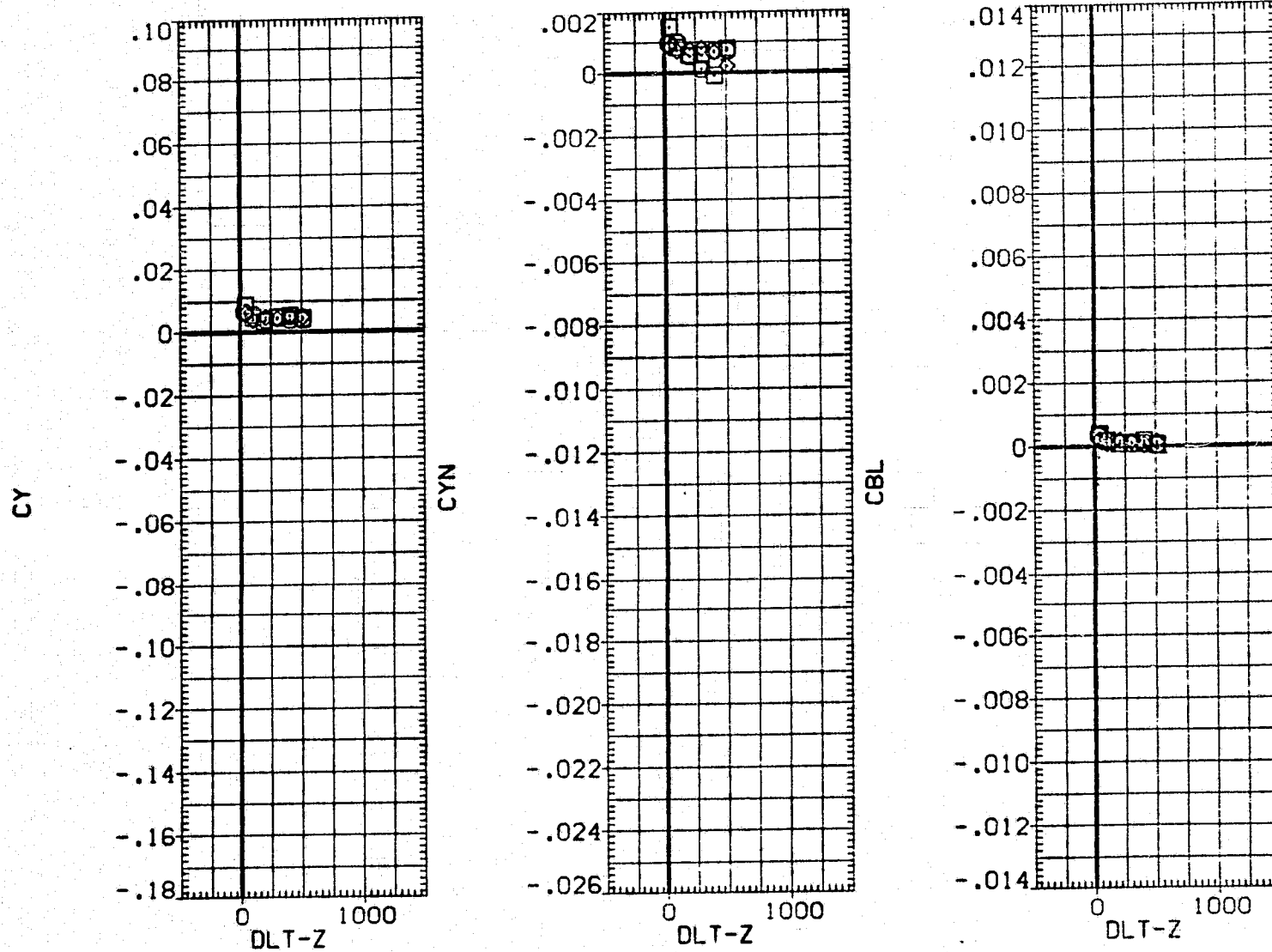


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO43)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.391	BETA	.000	ALPHA
□	200.380	DLTBT	.000	DLTALF
		AILRON	.000	MACH
		GRID	9.000	ELEVON
				.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

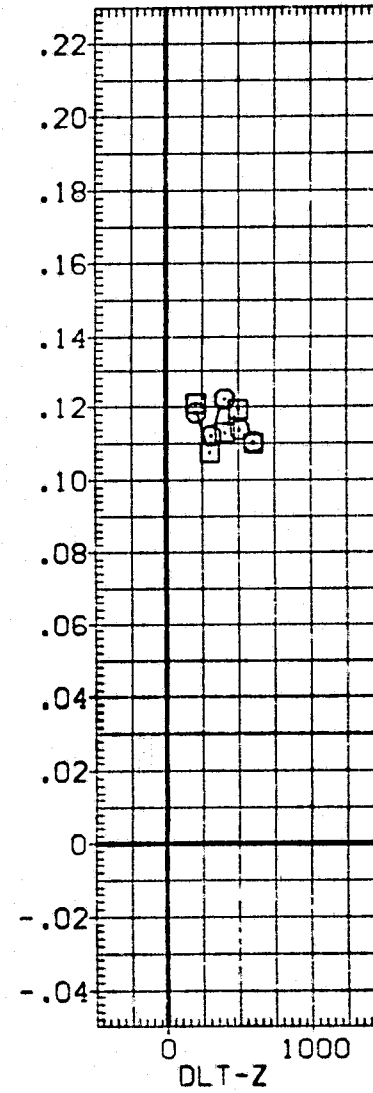
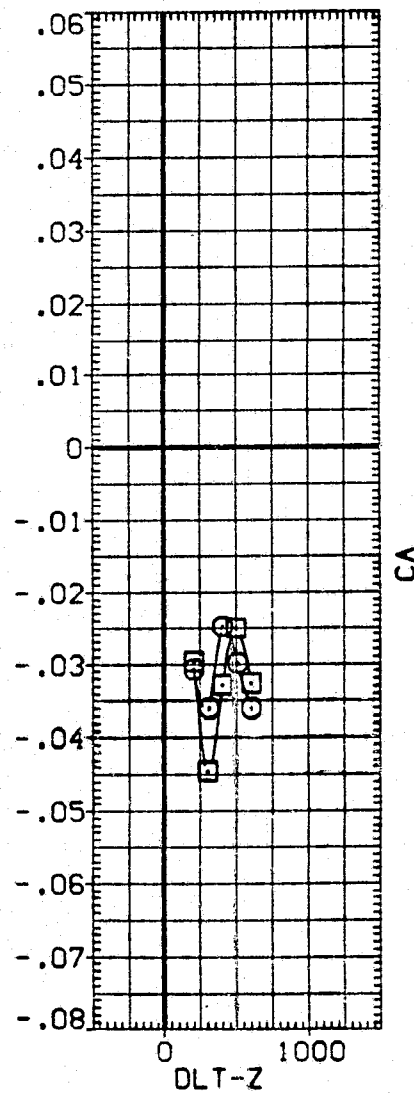
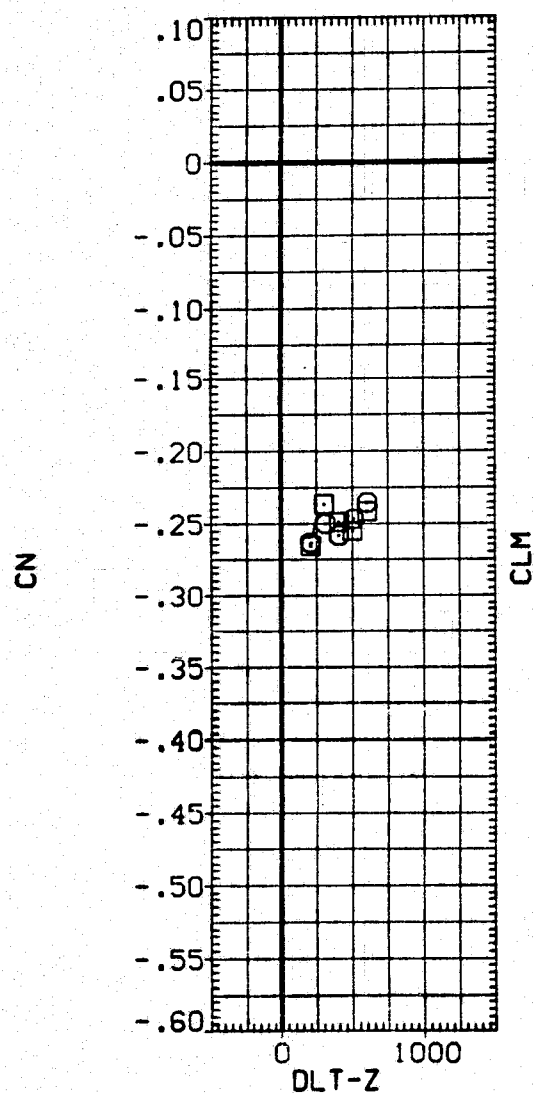


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO43)

SYMBOL ○ □	DLT-X	PARAMETRIC VALUES			
	.391	DLT-Y	.000	ALPHA	-10.000
	200.380	BETA	.000	DLTALF	-5.000
		DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
	GRID	9.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMPP	1360.1000	IN. XT
YMPP	.0000	IN. YT
ZMPP	416.4000	IN. ZT
SCALE	.0100	

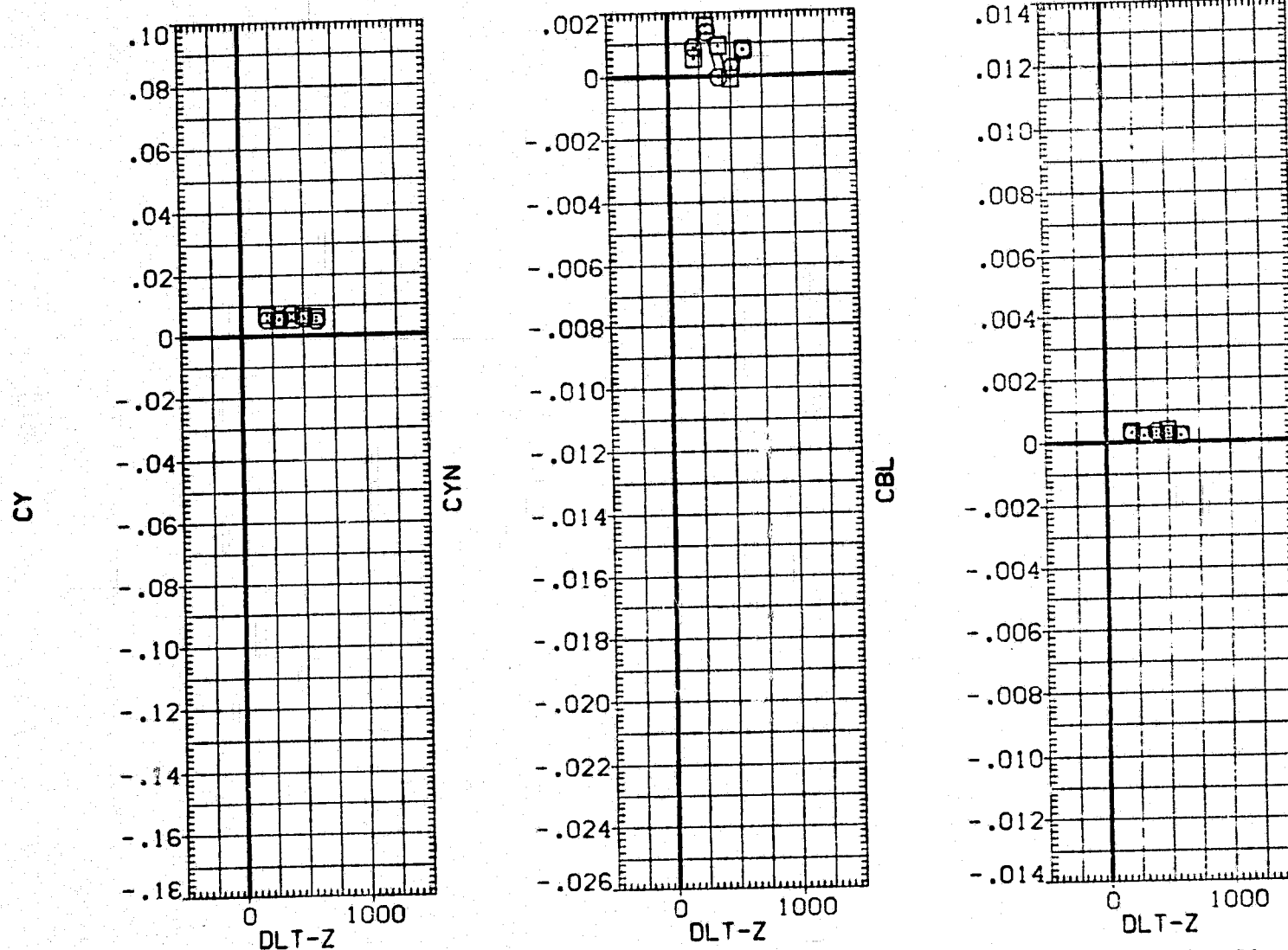


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO44)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.449	.000	ALPHA	-10.000
□	200.420	.000	DLTALF	-10.000
◇	400.430	.000	MACH	5.930
		.000	ELEVON	.000
		9.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

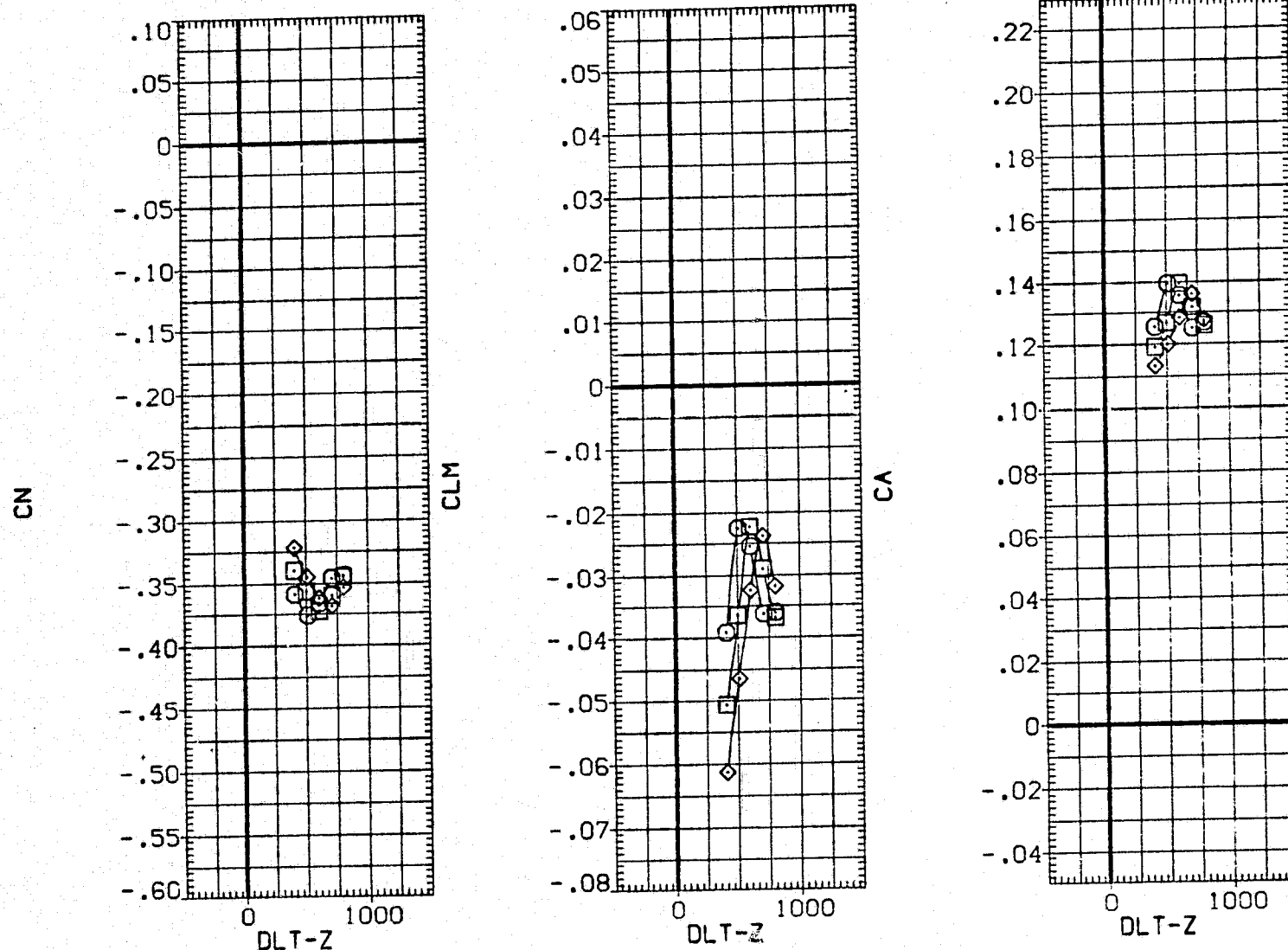


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO44)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.449	.000		-10.000	
□	200.420	.000	DLTALF	-10.000	
◇	400.430	.000	MACH	5.930	
		.000	ELEVON	.000	
		9.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

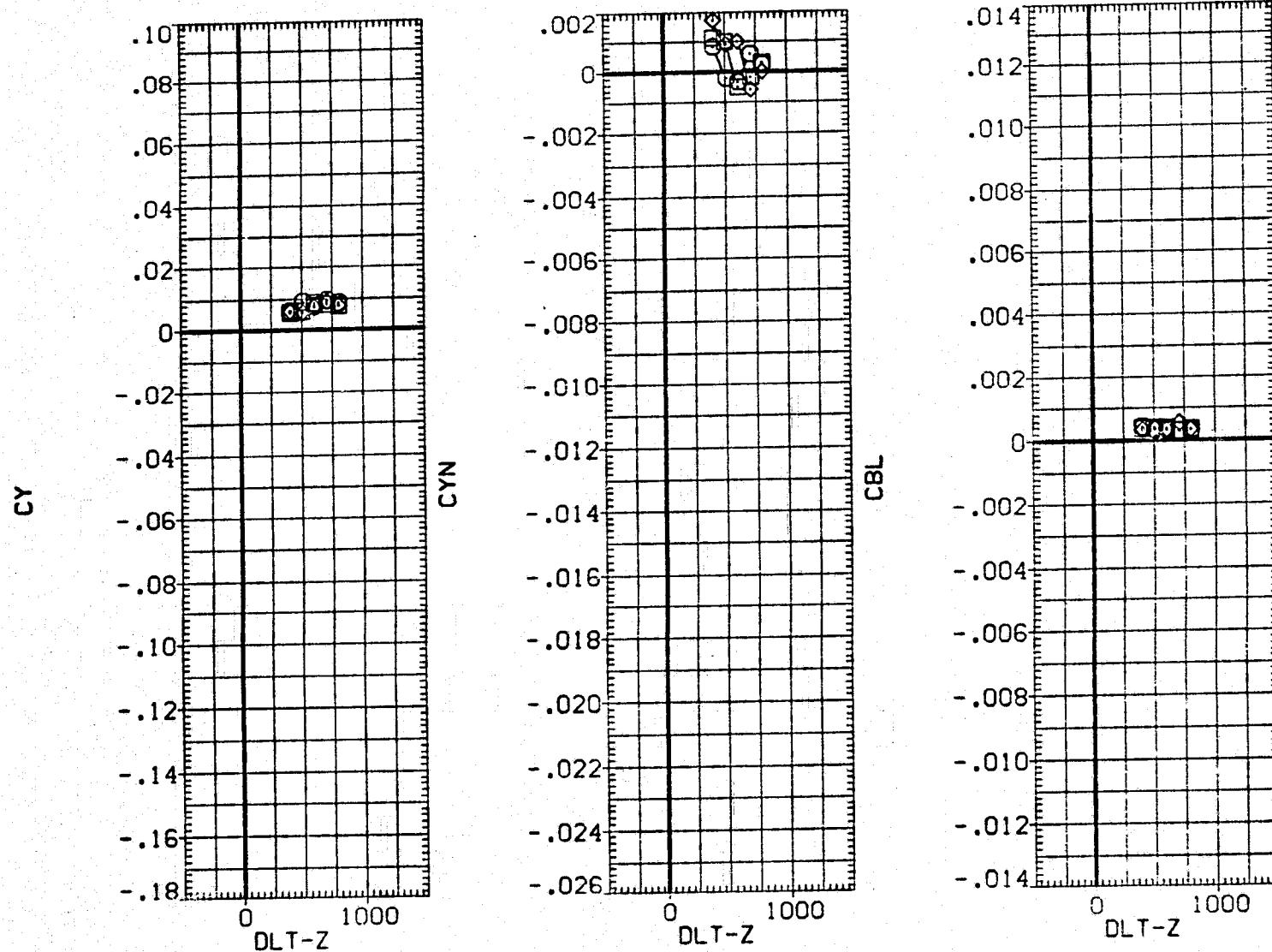


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO45)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.384	.000	DLTALF	-10.000
□	200.290	.000	MACH	5.930
◇	400.460	.000	ELEVON	.000
		APLRON		
		GRID	9.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

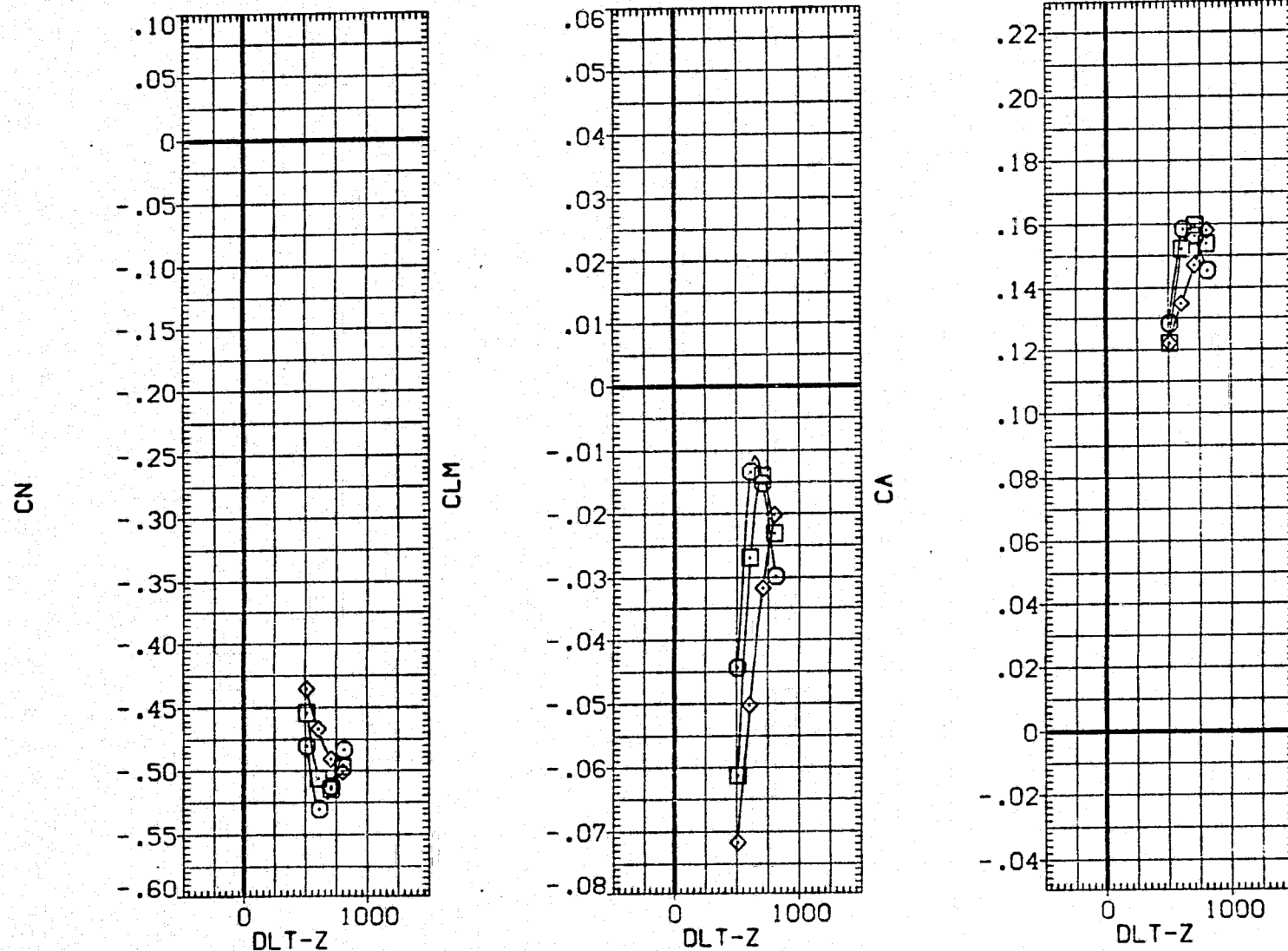


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO45)

SYMBOL		DLT-X		PARAMETRIC VALUES	
○		.384	DLT-Y	.000	ALPHA -10.000
□		200.290	BETA	.000	DLTALF -15.000
◇		400.460	DLTBTA	.000	MACH 5.930
			AIRON	.000	ELEVON .000
			GRID	9.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

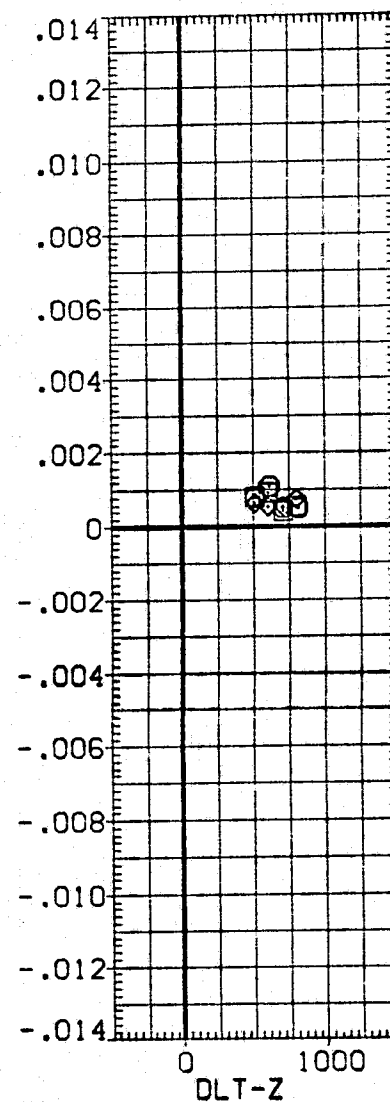
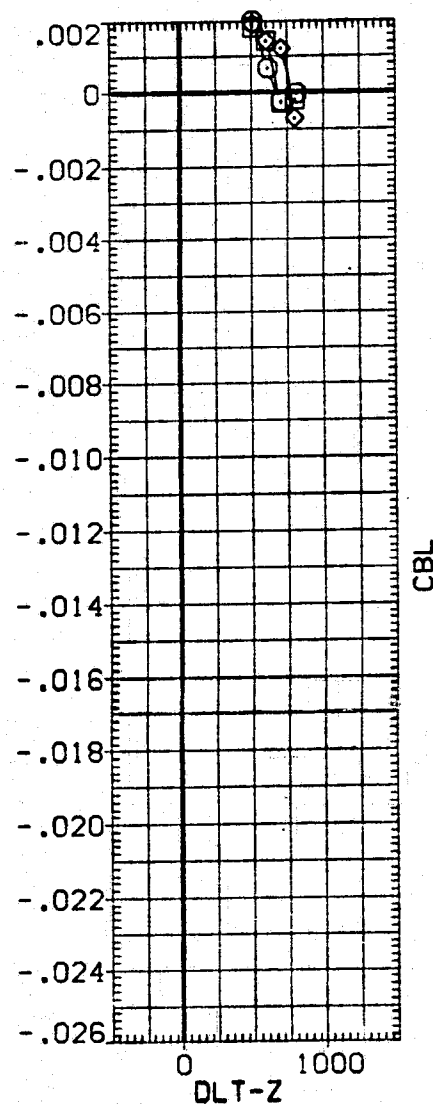
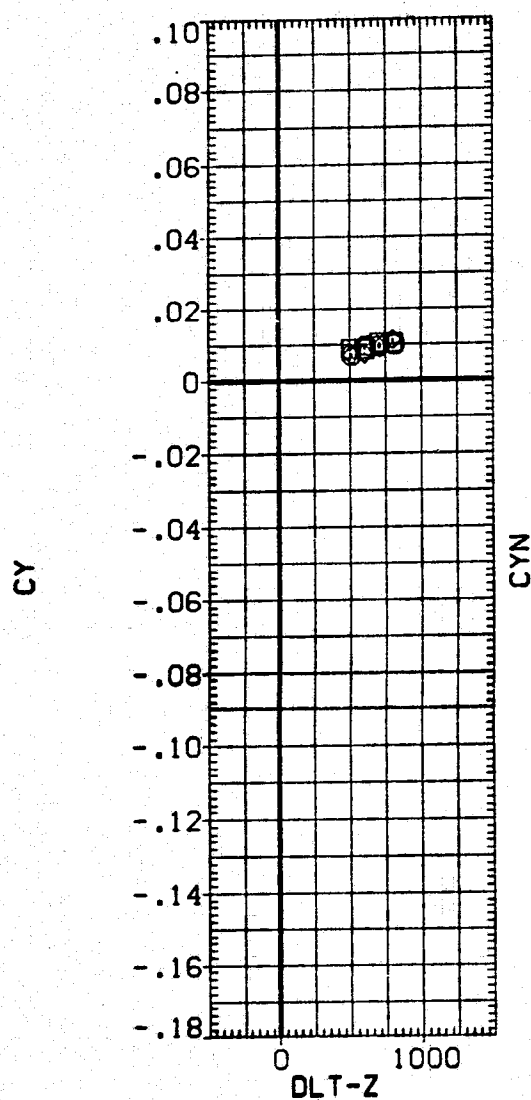


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO38)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.534	.000	ALPHA	-10.000
□	200.560	3.000	DLTALF	.000
		.000	MACH	5.930
		.000	ELEVON	.000
		8.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

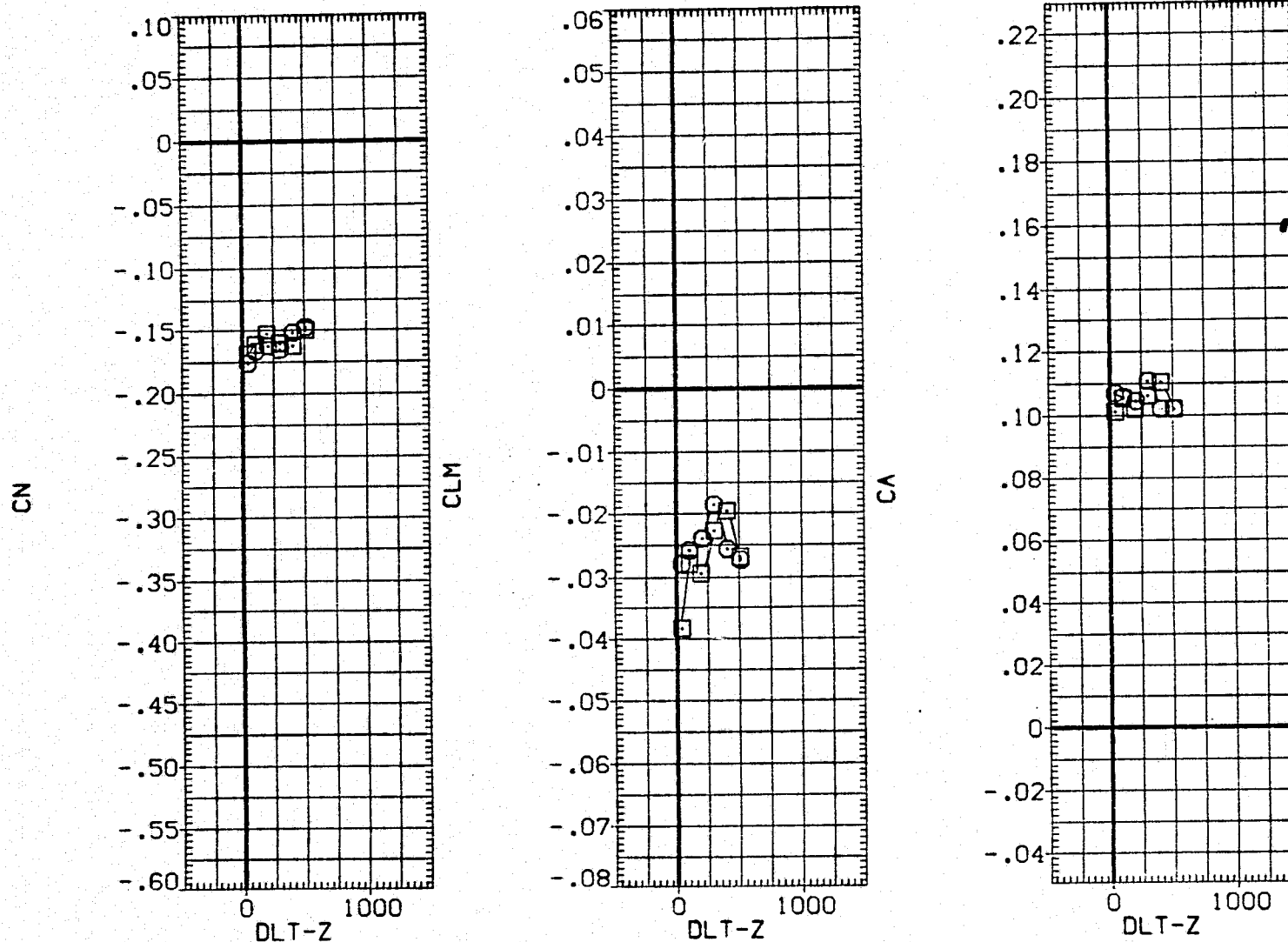


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO38)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	DLT-Y	BETA	DLTBTA	AILRON	GRID
○	.534	.000	.000	.000	8.000
□	200.560	3.000	.000	.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

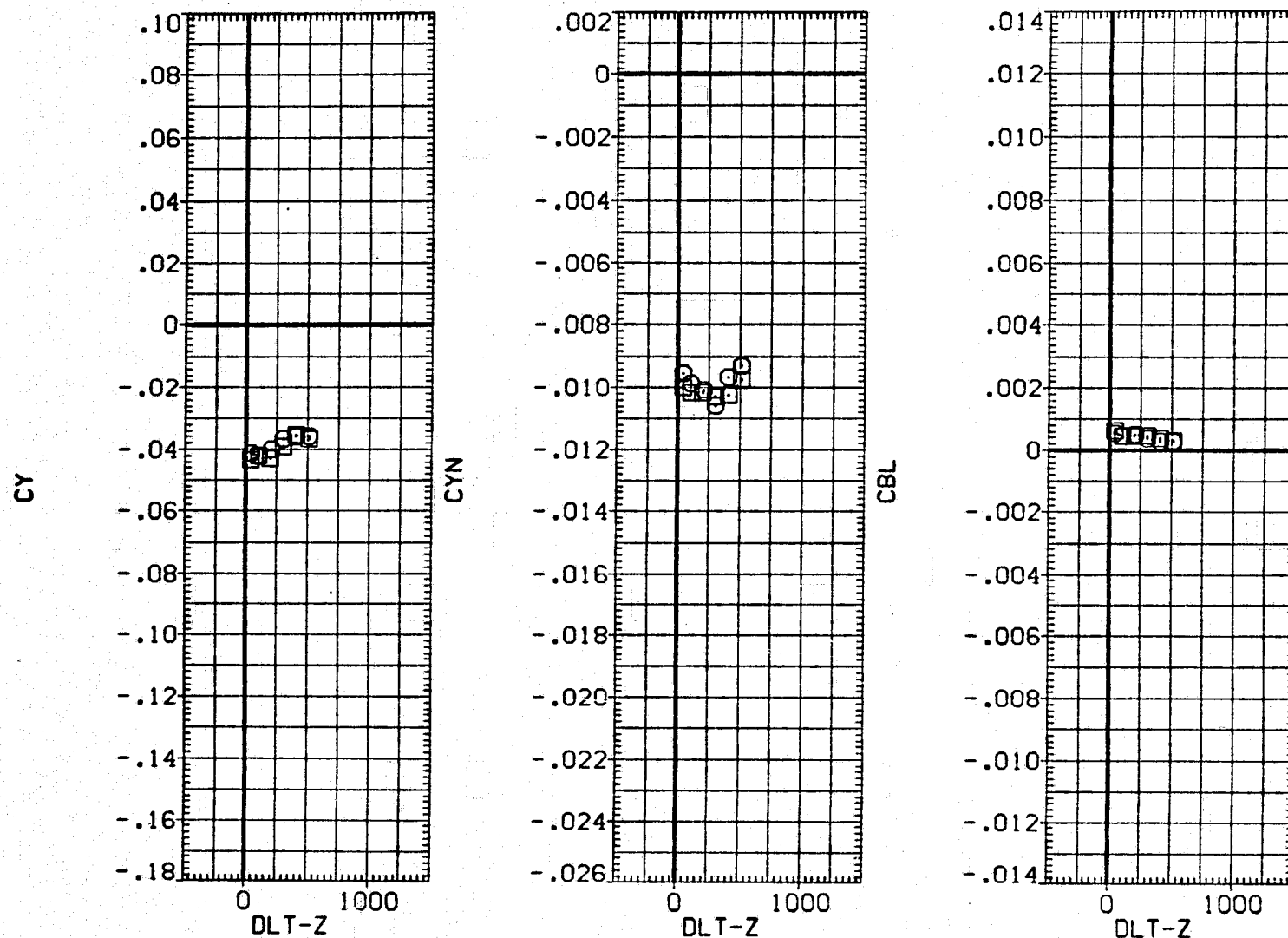


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO39)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.433	.000	ALPHA	-10.000
□	200.430	3.000	DLTALF	-5.000
		.000	MACH	5.930
		.000	ELEVON	.000
		8.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

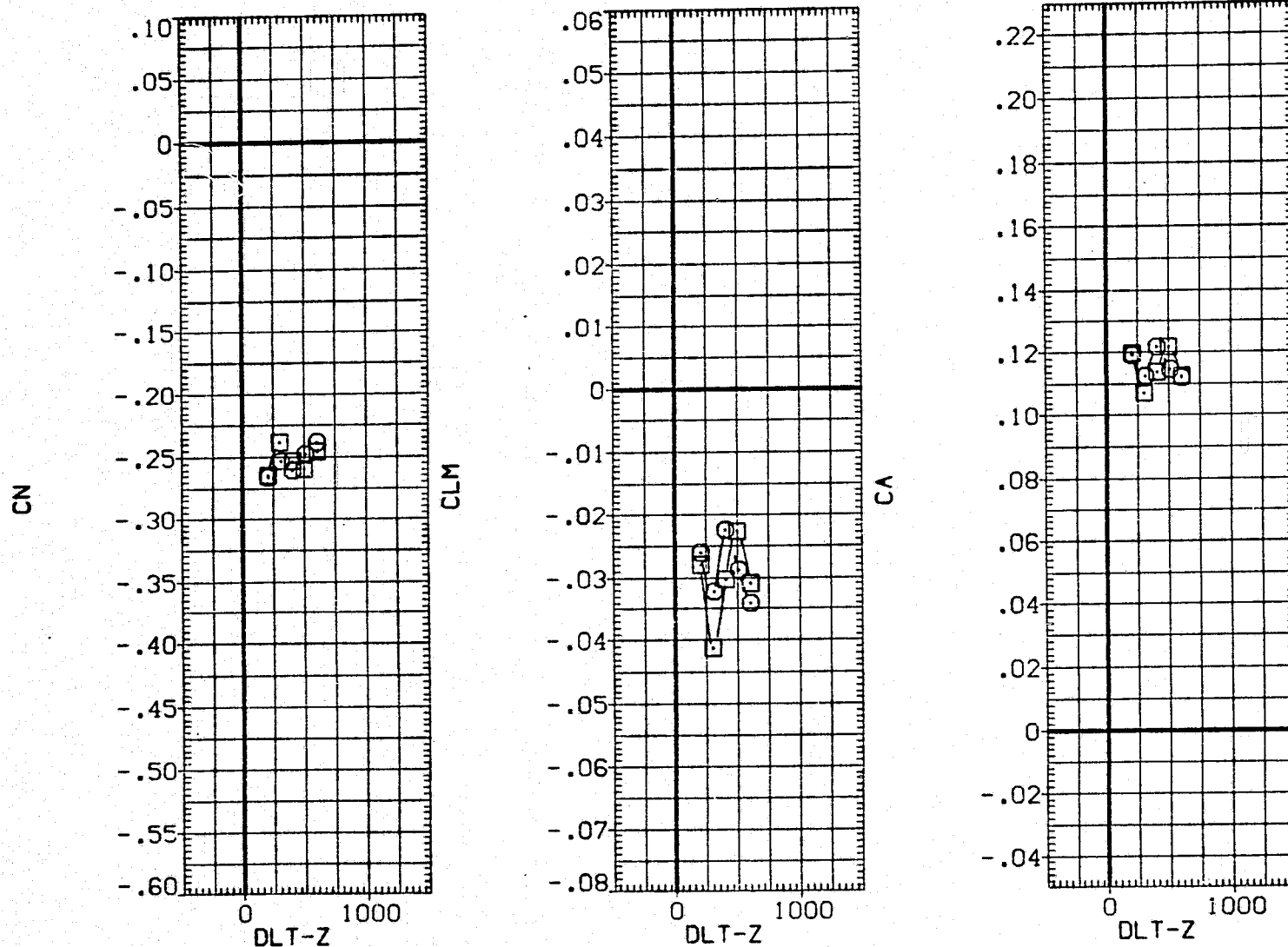


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO39)

SYMBOL	DLT-X	PARAMETRIC VALUES		
		DLT-Y	ALPHA	
○	.433	BETA	3.000	DLTALF
□	200.430	DLTBTA	.000	MACH
		AILRON	.000	ELEVON
		GRID	8.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

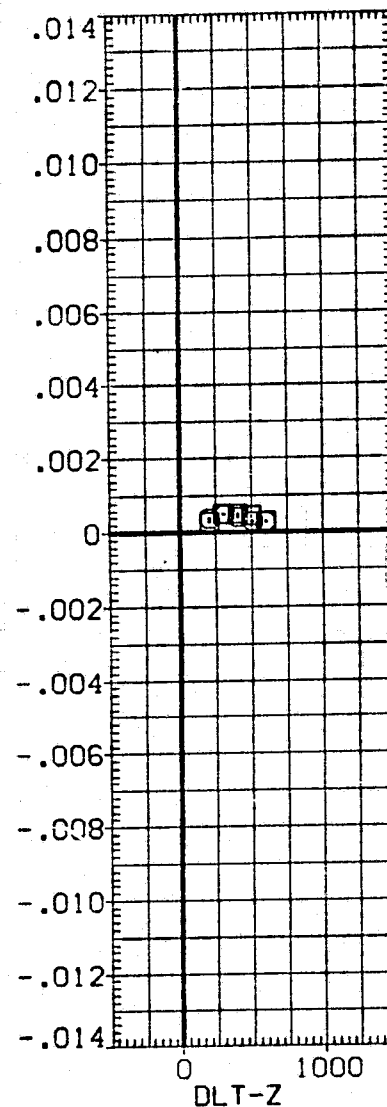
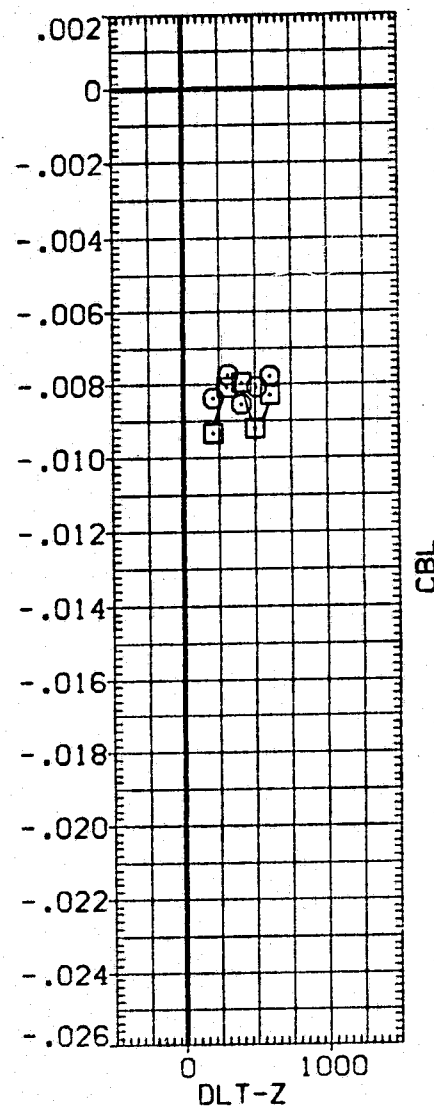
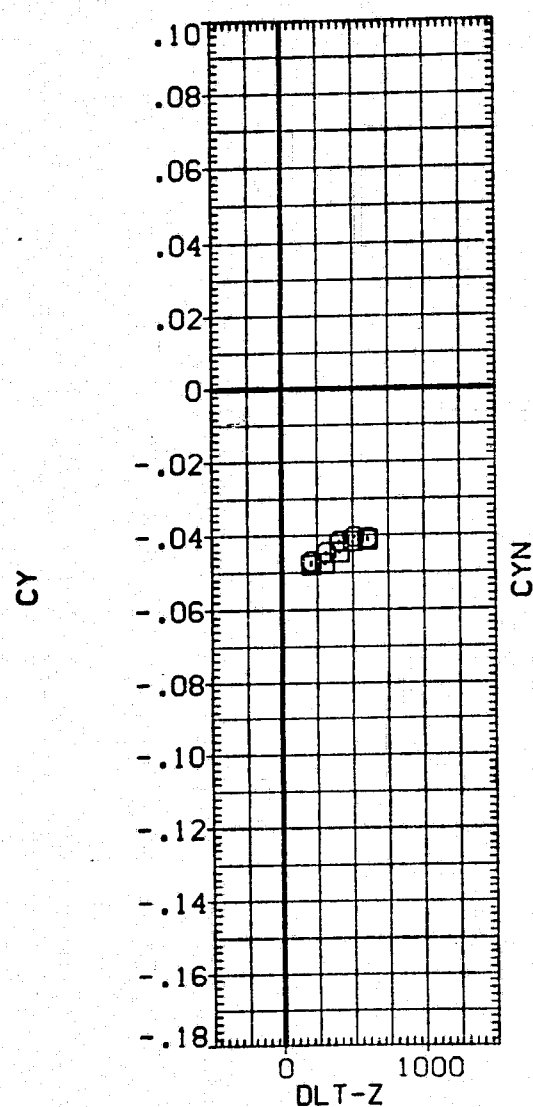


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO40)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
◇	.554	.000		-10.000	
□	200.500	3.000		-10.000	
○	400.480	.000		5.930	
		DLTBT		ELEVON	.000
		AILRON			
		GRID	8.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

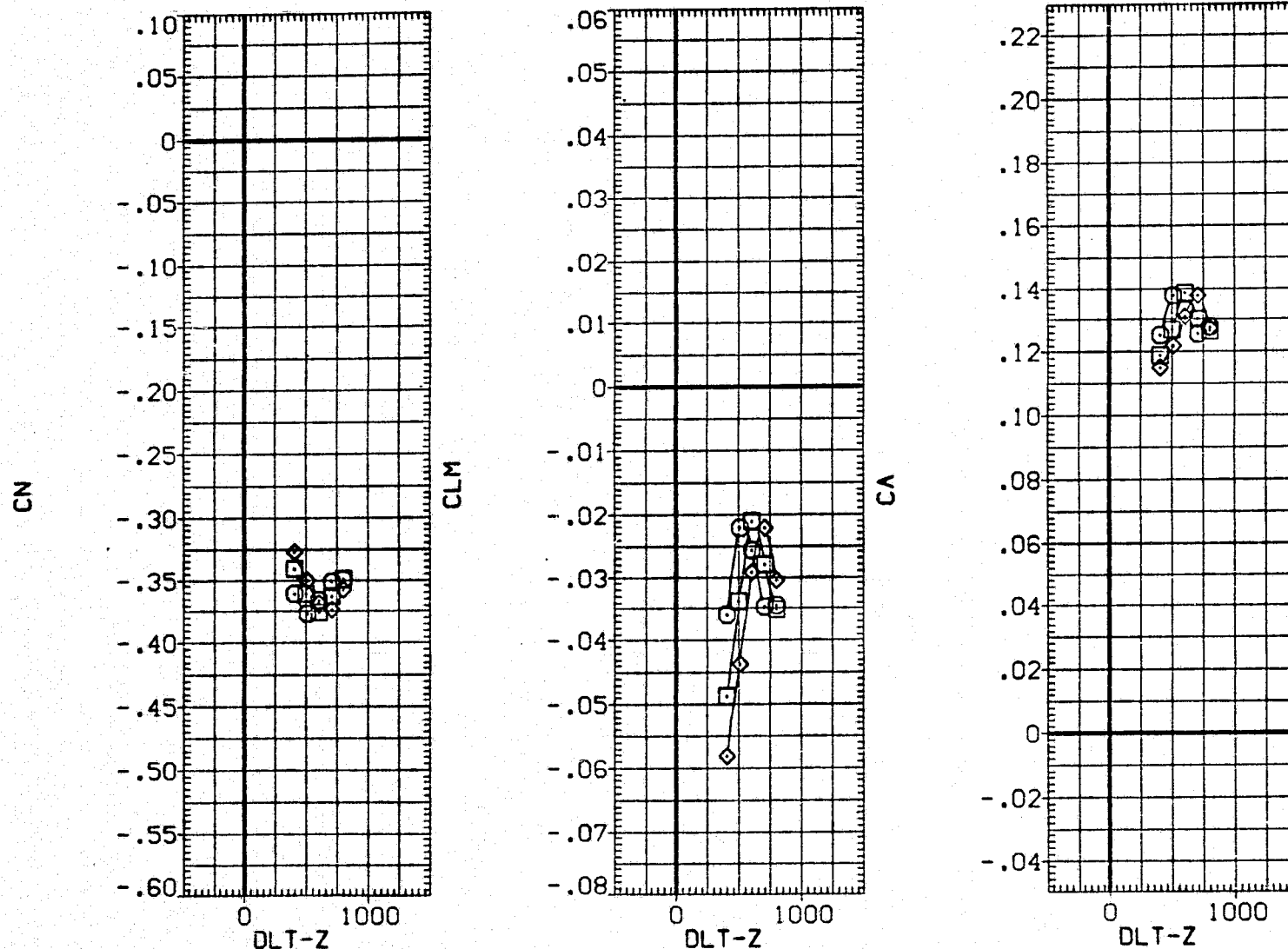


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO40)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.554	.000		-10.000
□	200.500	BETA	3.000	DLTALF
◇	400.480	DLTBTA	.000	MACH
		AIRTON	.000	ELEVON
		GRID	8.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

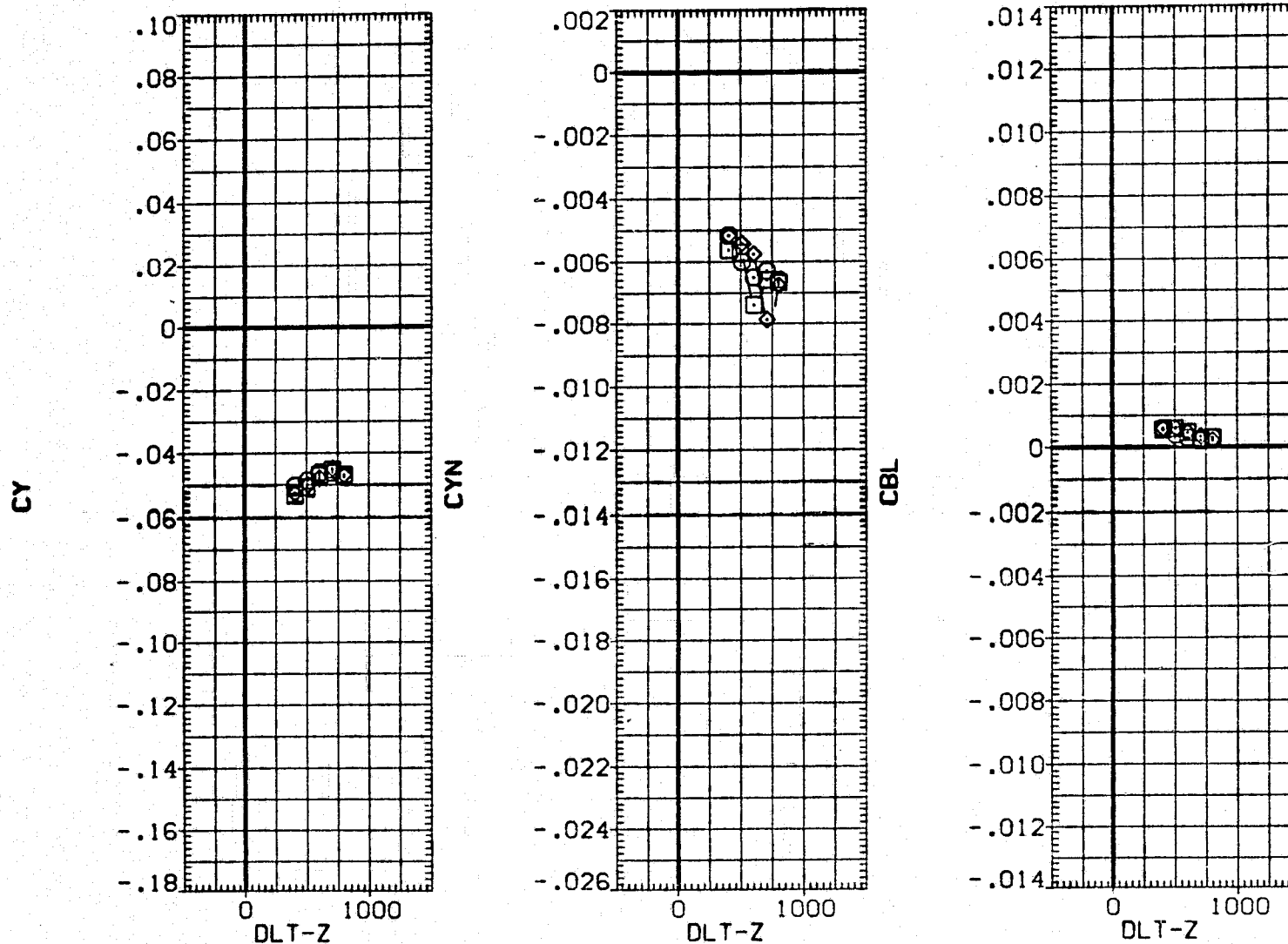


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO41)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.493		.000	-10.000		
□	200.470	BETA	3.000	-15.000		
◇	400.560	DLTBTA	.000	5.930		
		AILRON	.000	.000		
		GRID	8.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

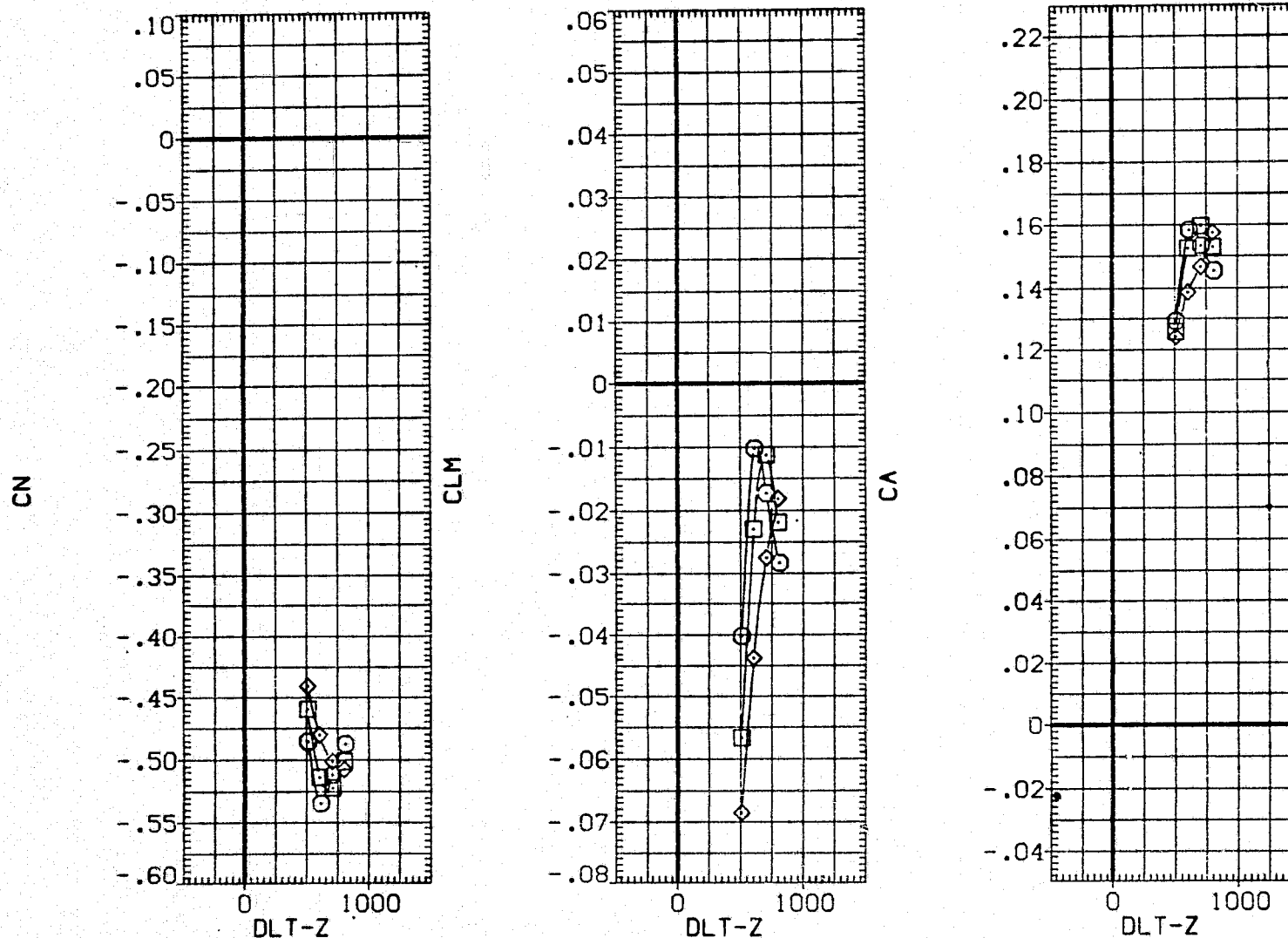


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO41)

SYMBOL
○
□
◇

DLT-X
.493
200.470
400.560

DLT-Y
DLTBT
AILRON
GRID

PARAMETRIC VALUES
.000
3.000
.000
.000
8.000

ALPHA
DLTALF
MACH
ELEVON

-10.000
-15.000
5.930
.000

REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

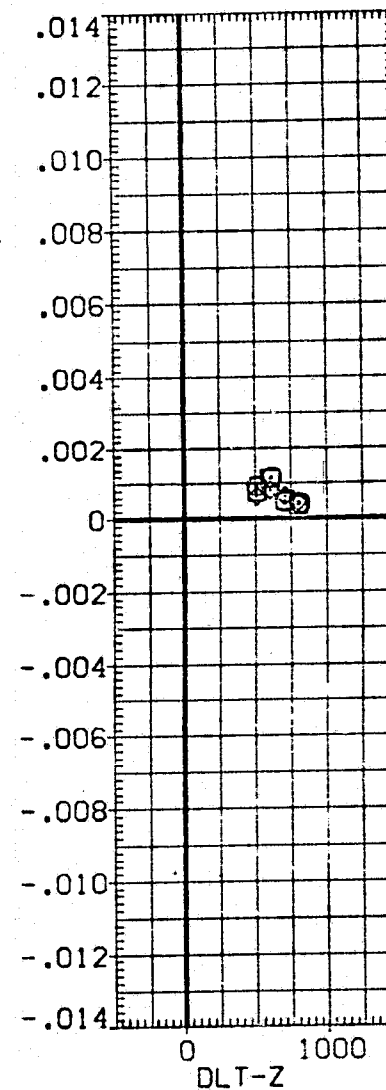
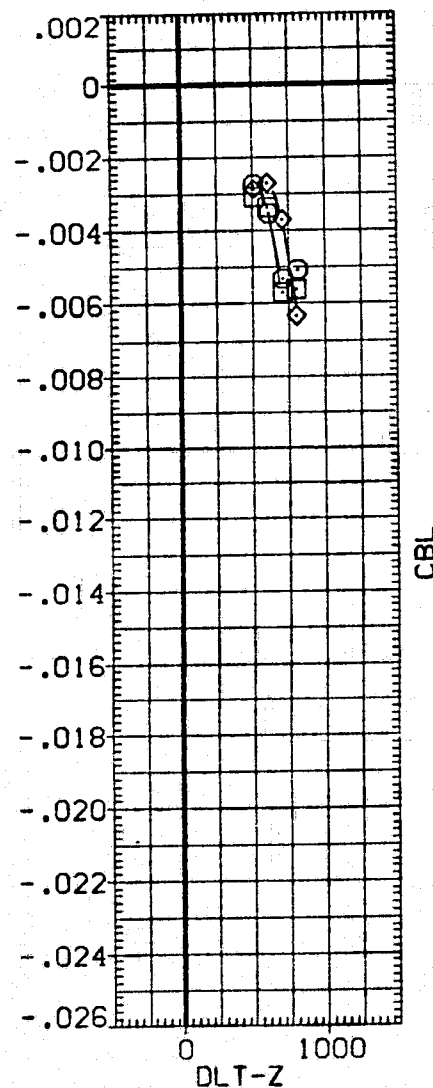
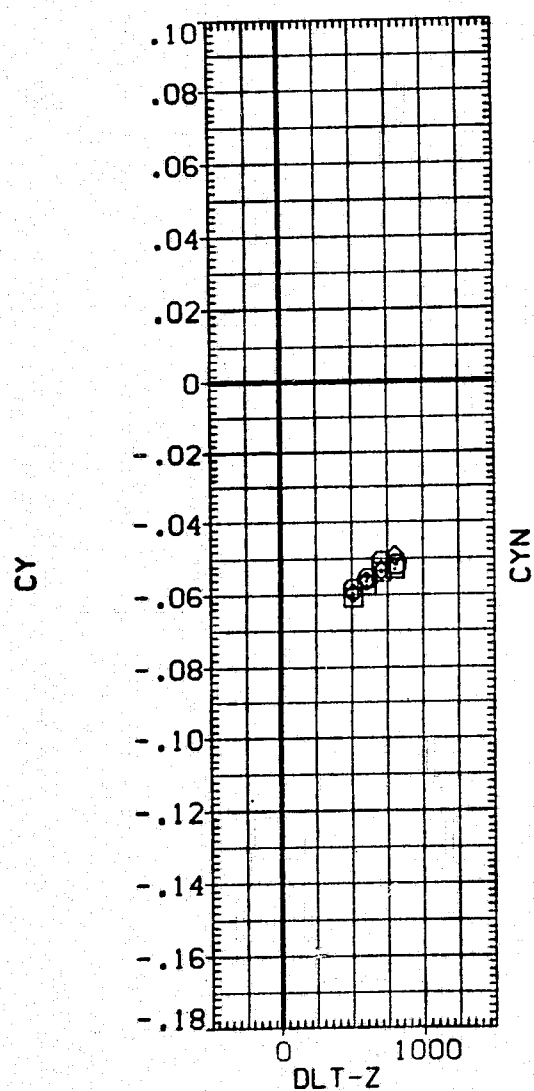


FIGURE 23 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR100)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.479	BETA	.000	.000	5.930	15.000
□	400.440	DLTBTA	.000			
		AILRON	.000			
		GRID	13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

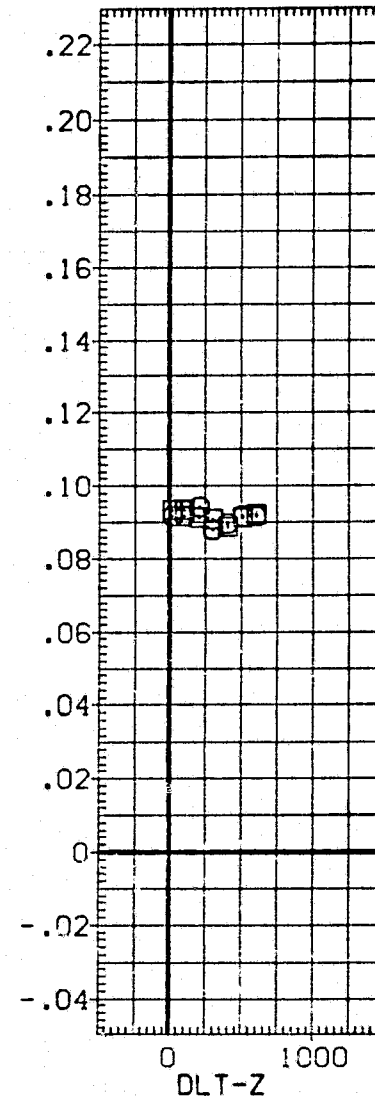
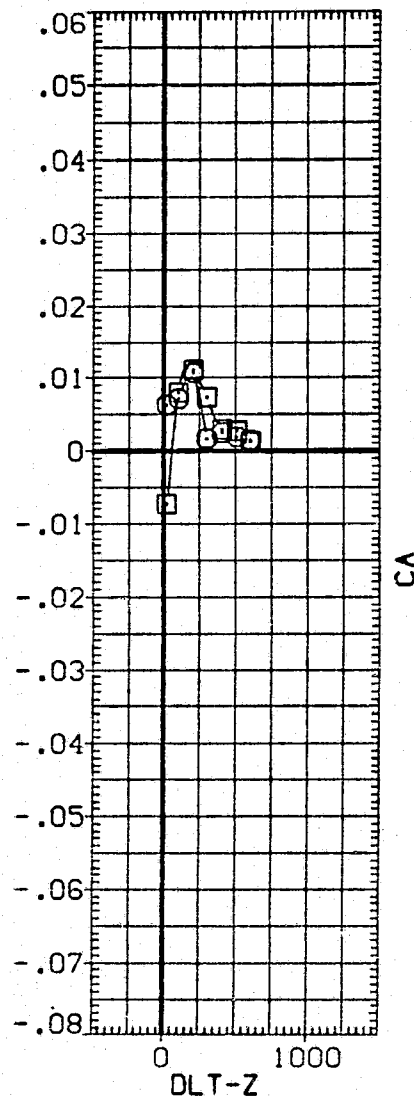
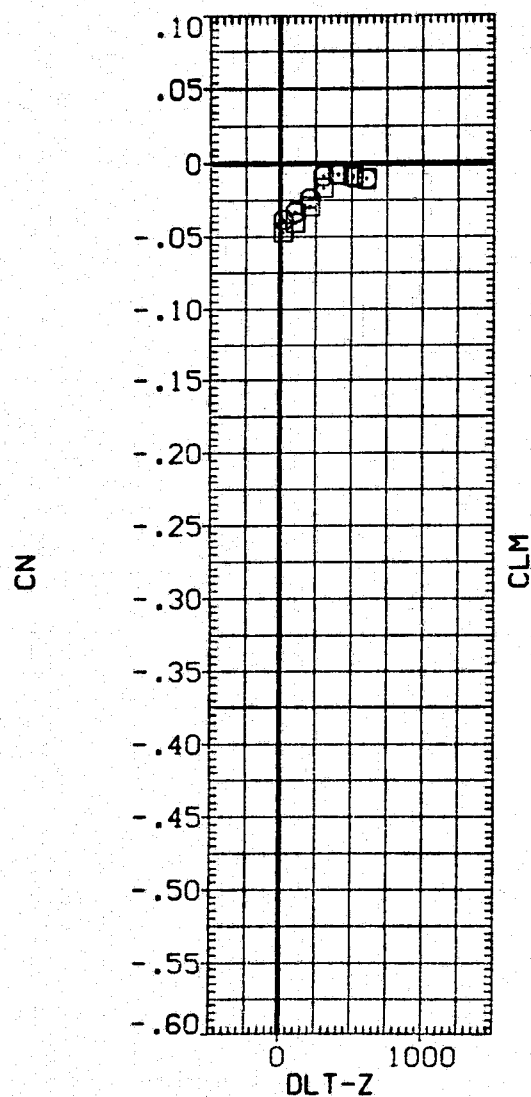


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR100)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.479	.000		.000	
□	400.440	.000	DLTALF	.000	
		.000	MACH	5.930	
		.000	ELEVON	15.000	
		.000			
		13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

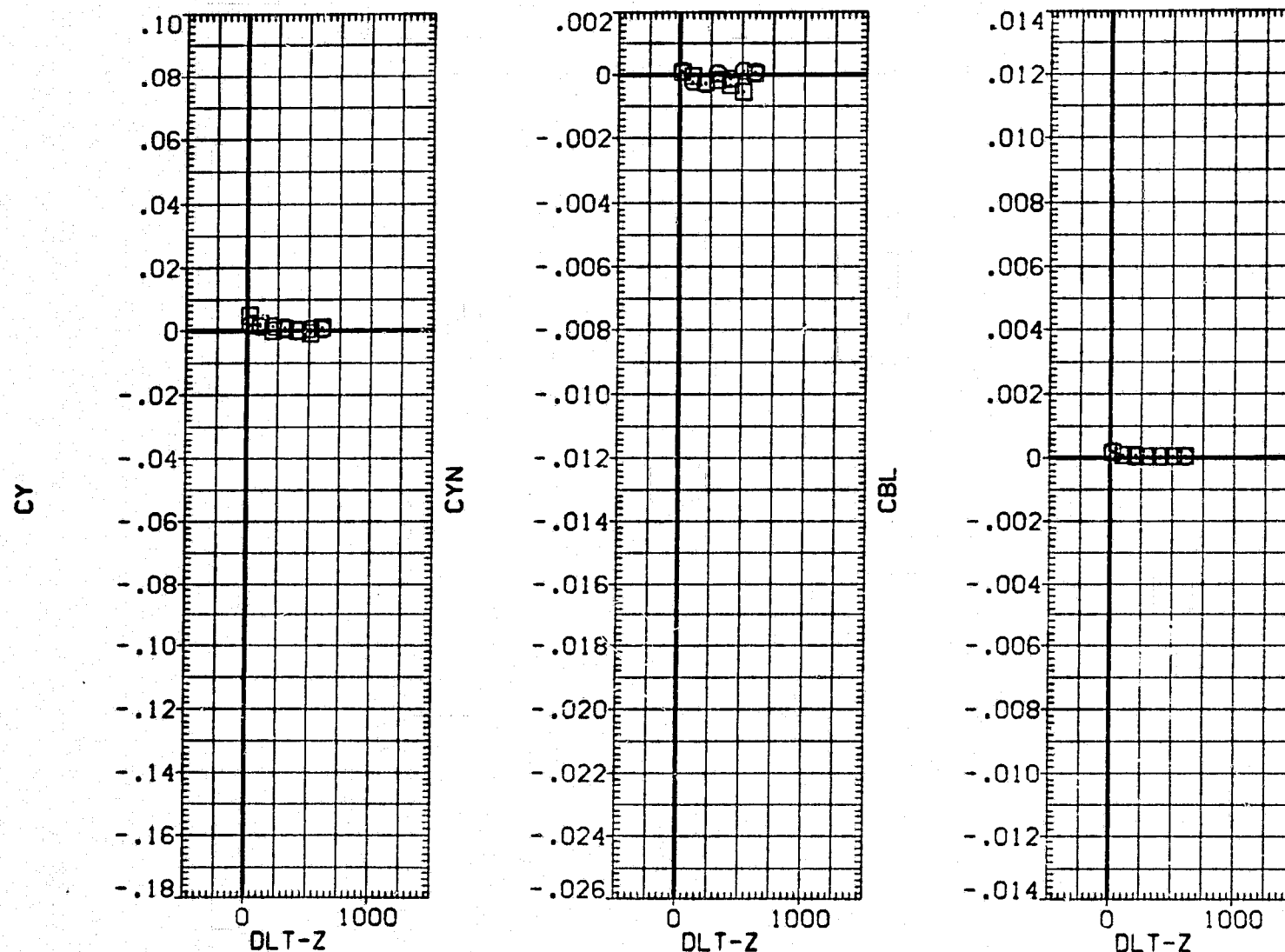


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR101)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.476	.000	.000	-10.000	5.930	15.000
□	400.500	.000	.000			
		DLTBTA	.000			
		AILRON	.000			
		GRID	13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

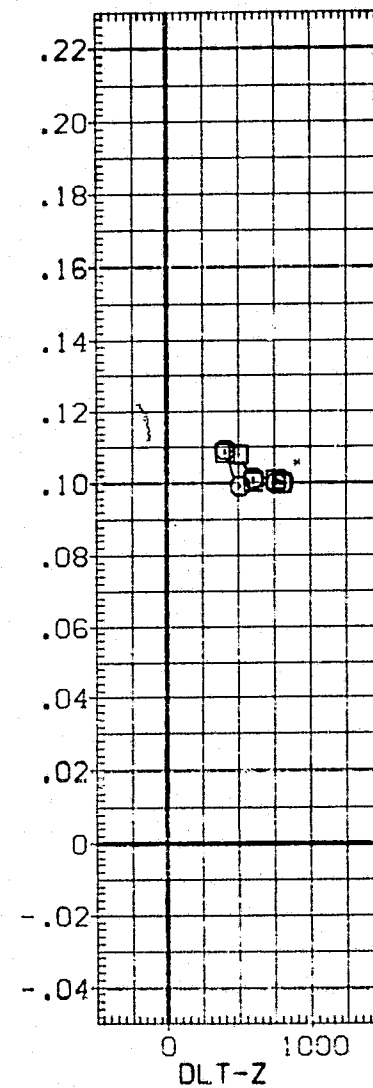
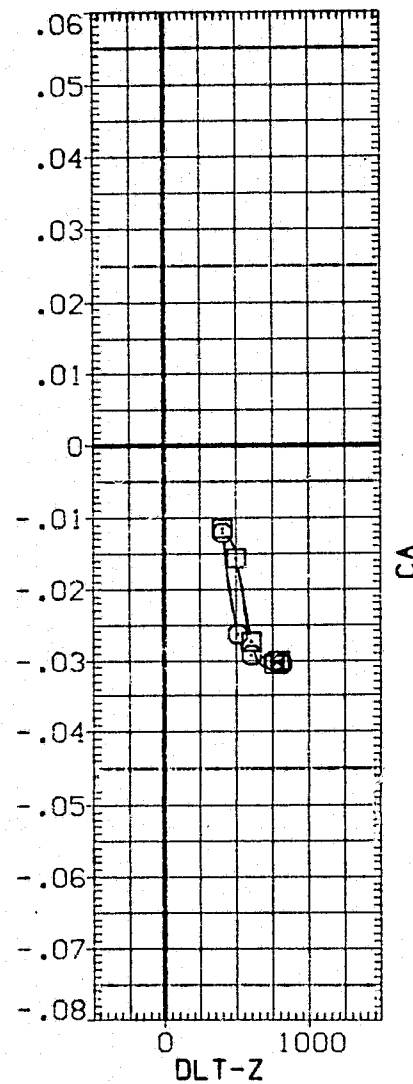
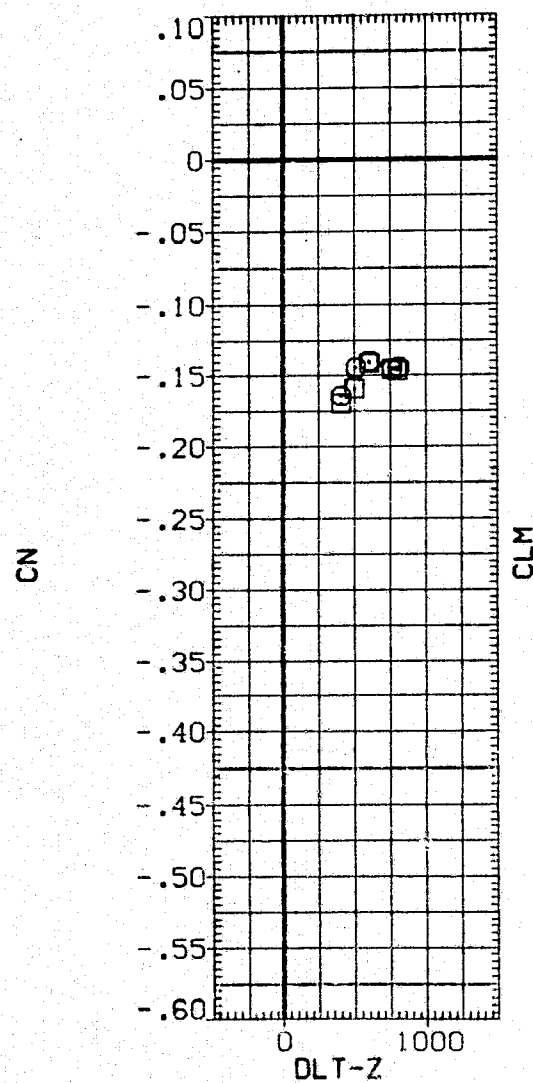


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR101)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.476	.000	.000	-10.000	5.930	15.000
□	400.500	BETA	.000			
		DLTBTA	.000			
		AILRON	.000			
		GRID	13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

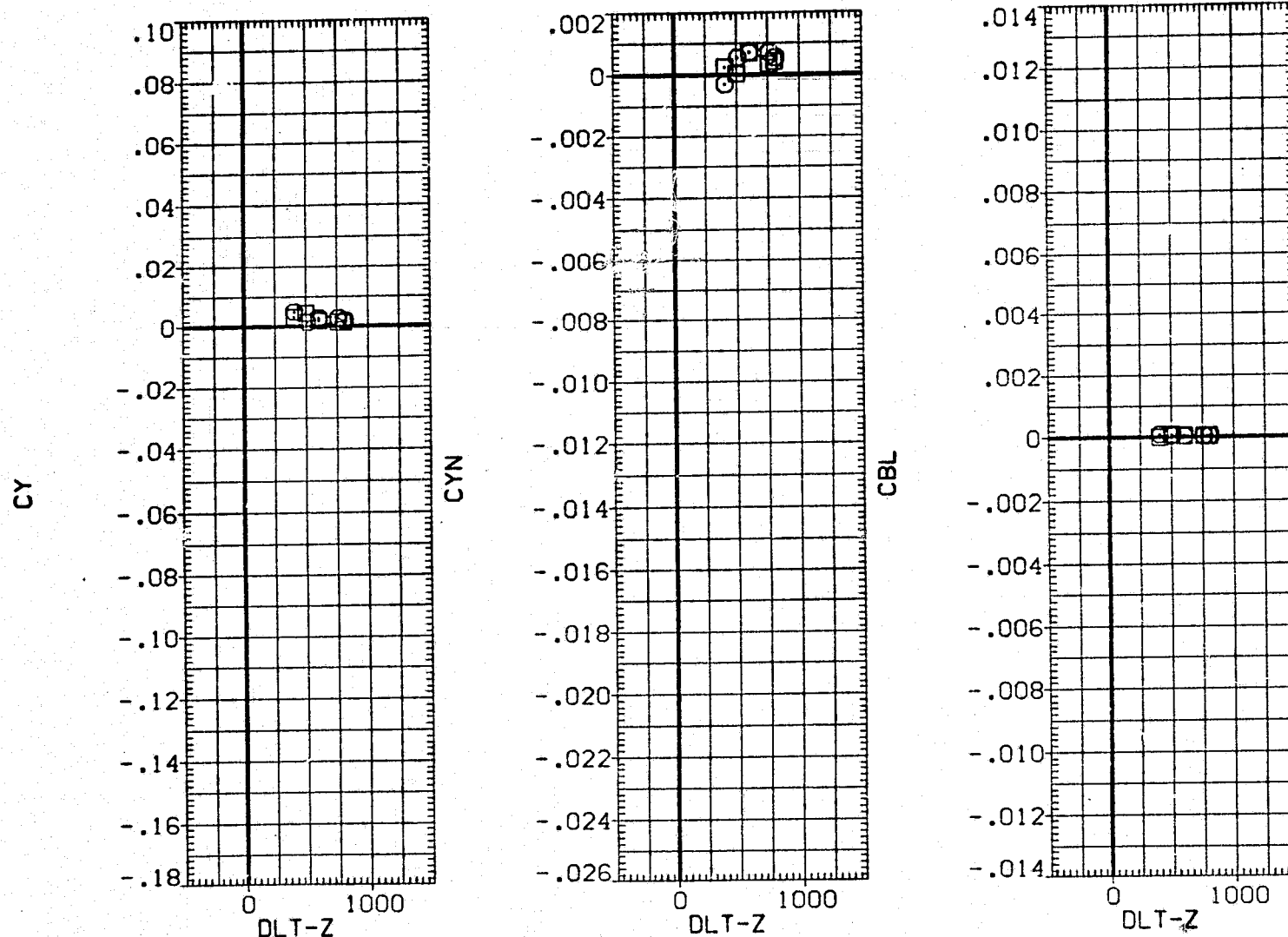


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR103)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.436	.000	DLTALF	-20.000
□	400.290	.000	MACH	5.930
		.000	ELEVON	15.000
		GRID	13.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

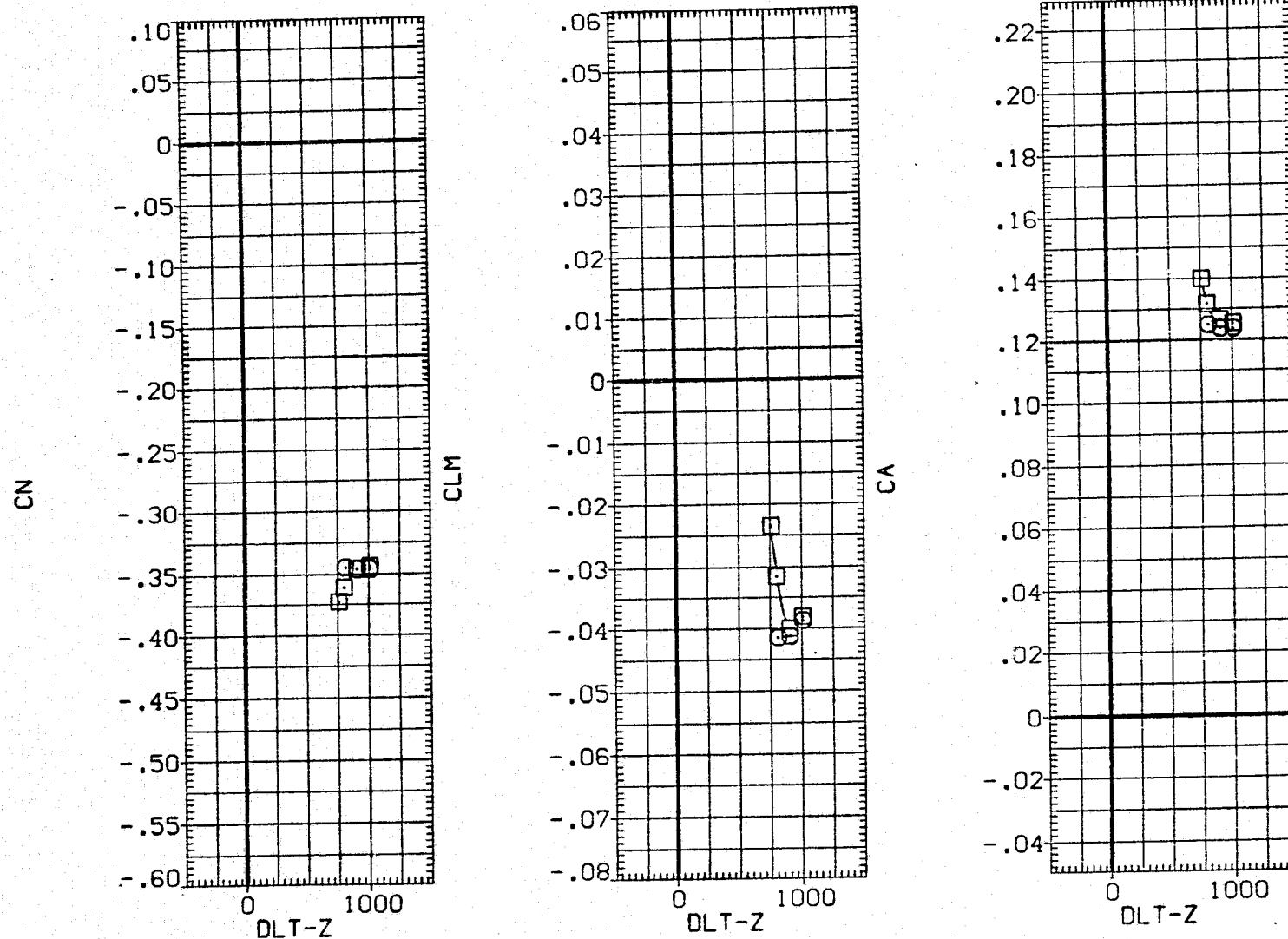


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR103)

SYMBOL		PARAMETRIC VALUES	
○	DLT-X .436	DLT-Y .000	ALPHA .000
□	400.290	BETA .000	DLTALF -20.000
		DLTBTB .000	MACH 5.930
		AIRON .000	ELEVON 15.000
		GRID 13.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XM RP	1360.1000	IN. XT
YM RP	.0000	IN. YT
ZM RP	416.4000	IN. ZT
SCALE	.0100	

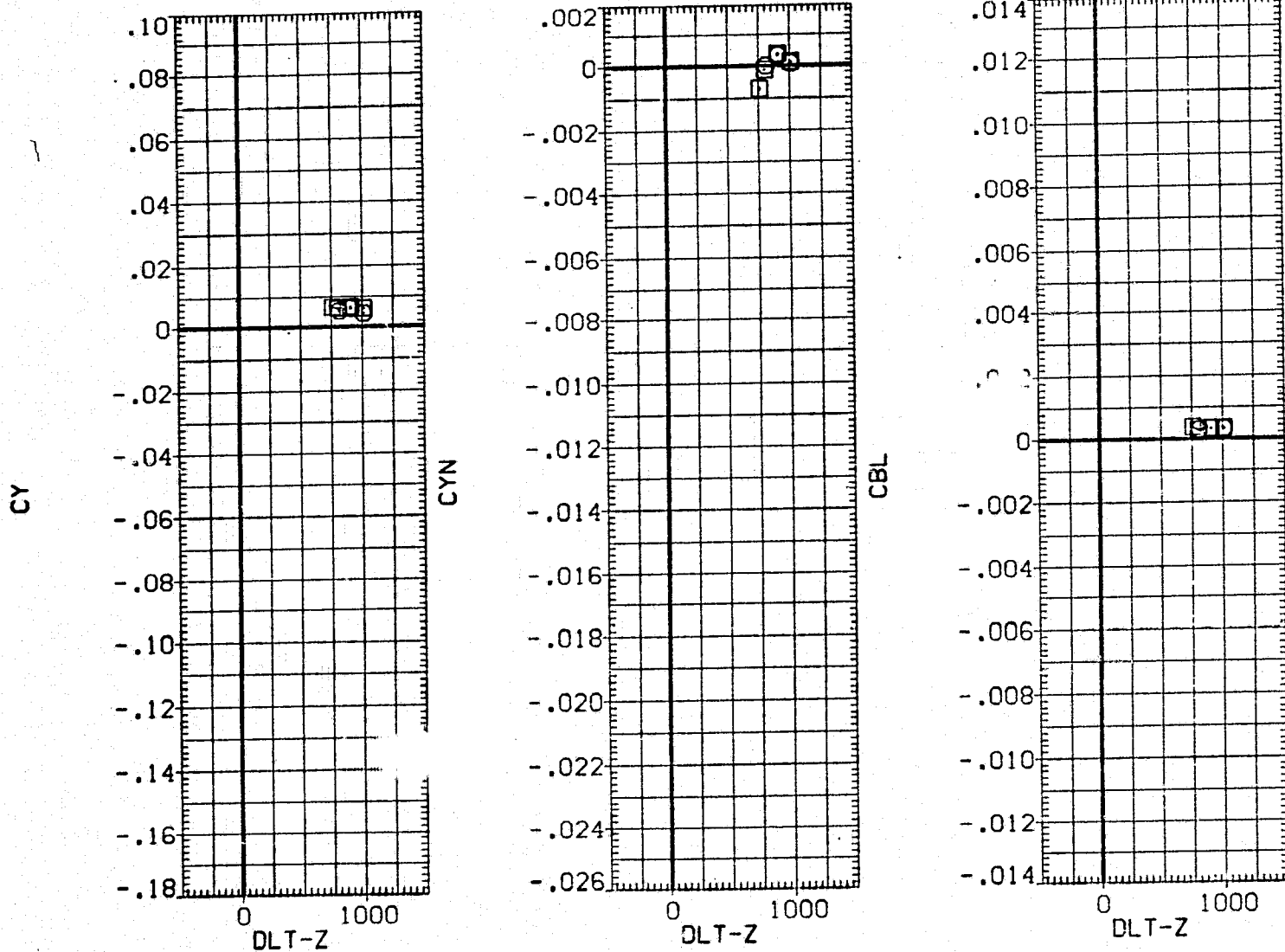


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS ($\Delta Y=0$, $MACH=5.93$, $ELEVON=15$)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO97)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.626	BETA	3.000	.000
		DLTBTA	.000	.000
		AILRON	.000	5.930
		GRID	14.000	ELEVON 15.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

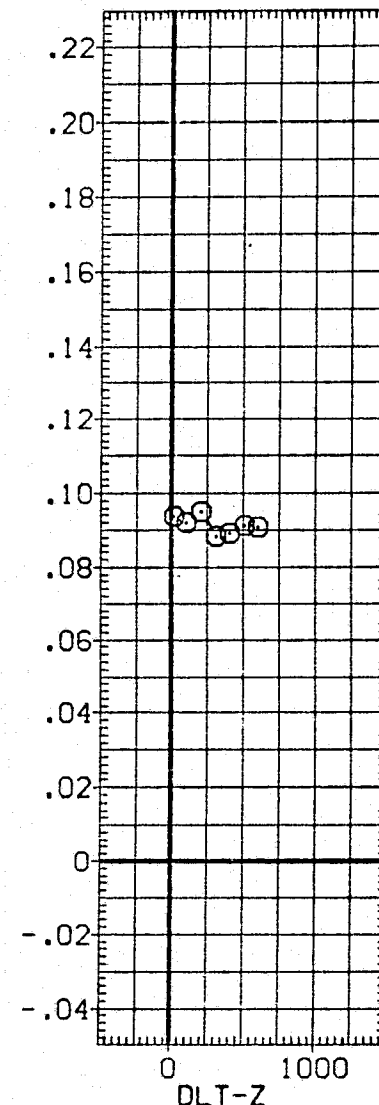
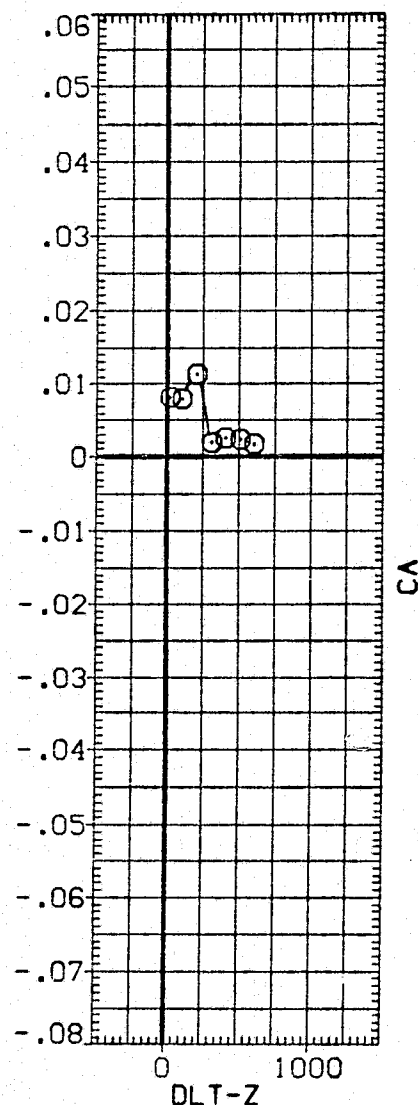
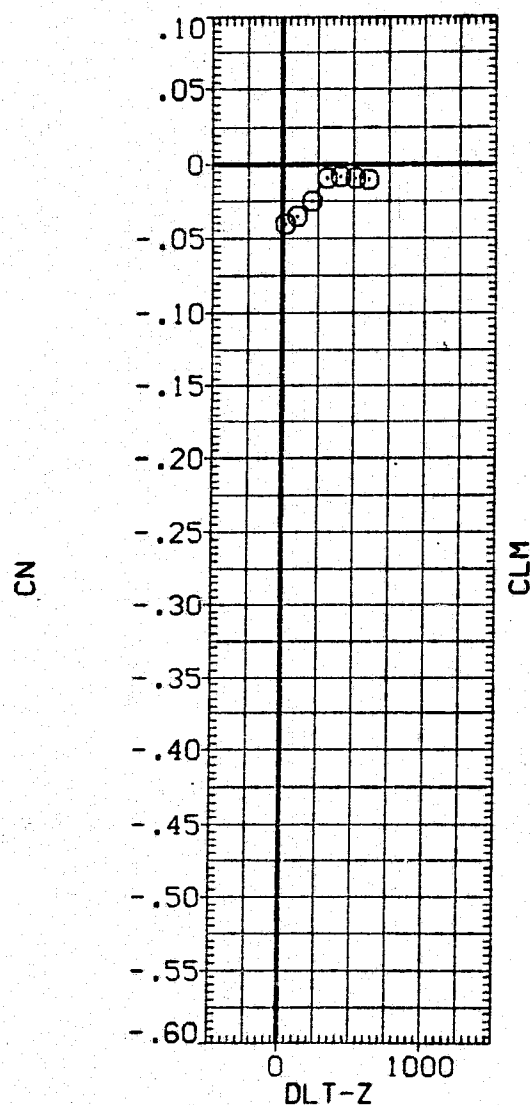


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO97)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.626		.000	.000	
		BETA	3.000	DLTALF	.000
		DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

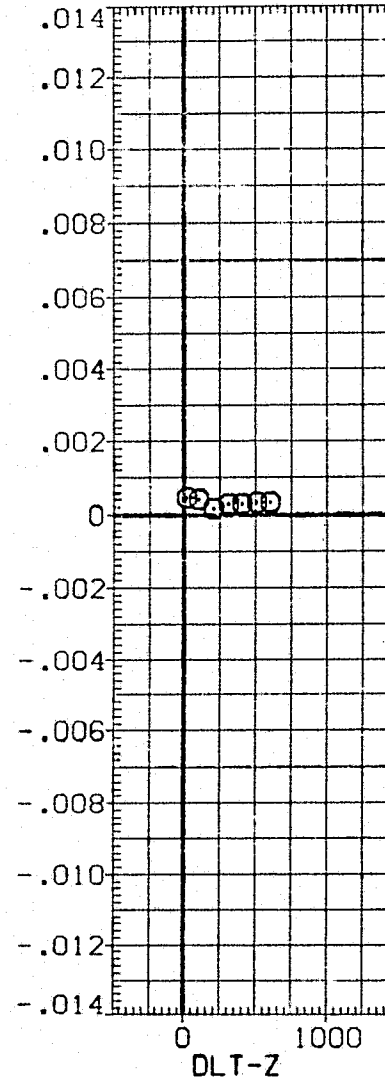
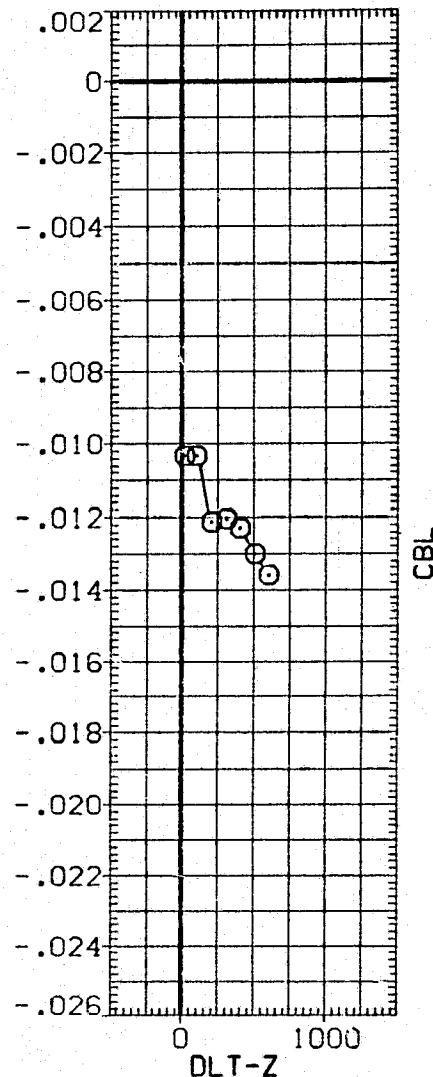
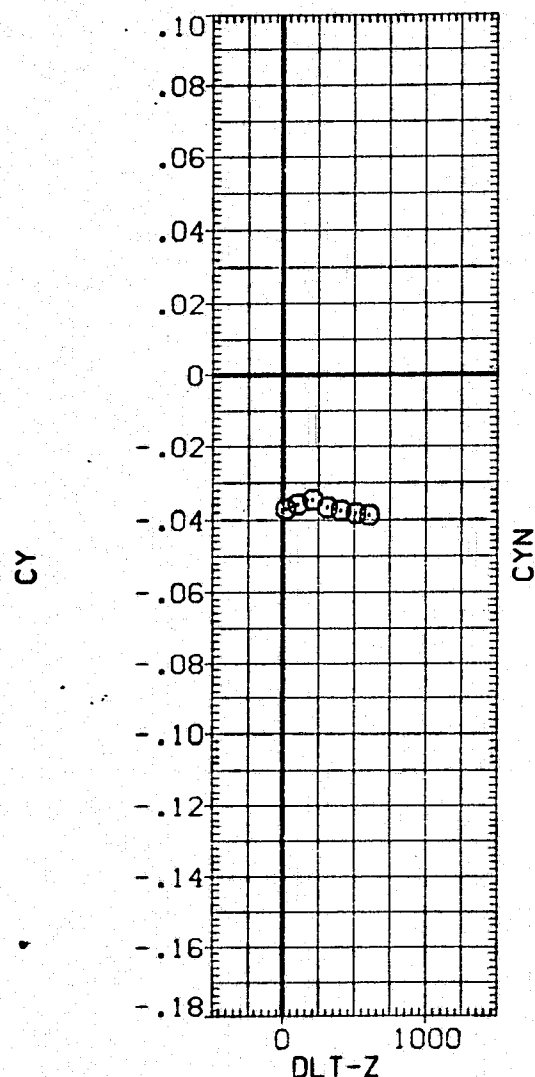


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO98)

SYMBOL	DLT-X	PARAMETRIC VALUES
O	.515	DLT-Y .000 ALPHA .000
		BETA 3.000 DLTALF -10.000
		DLTBTA .000 MACH 5.930
		AILRON .000 ELEVON 15.000
		GRID 14.000

REFERENCE INFORMATION
SREF 2690.0000 SQ.FT.
LREF 1290.3000 IN.
BREF 1290.3000 IN.
XMRP 1360.1000 IN. XT
YMRP .0000 IN. YT
ZMRP 416.4000 IN. ZT
SCALE .0100

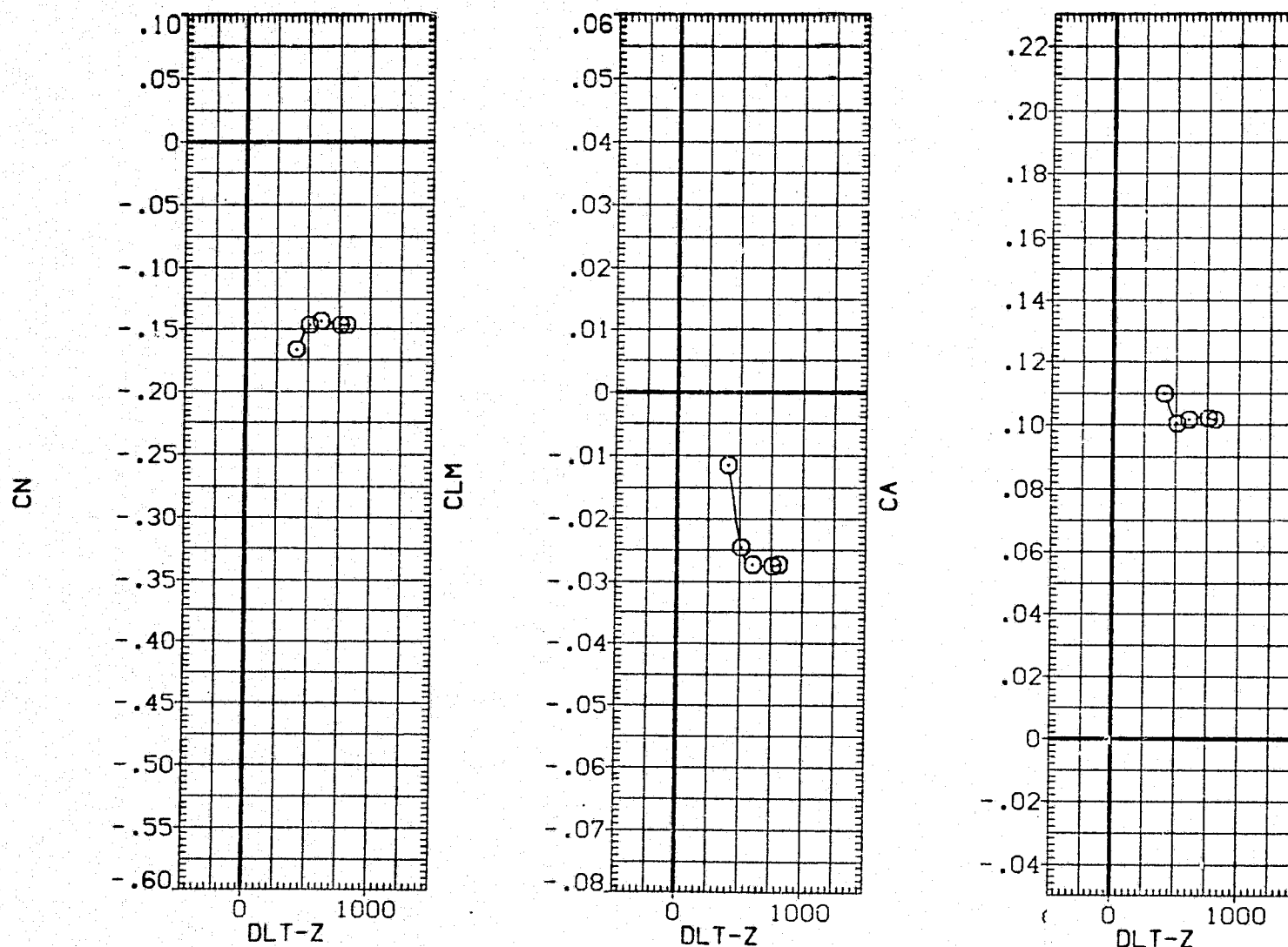


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO98)

SYMBOL
O

DLT-X
.515

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES

ALPHA
DLTALF
MACH
ELEVON

REFERENCE INFORMATION
SREF 2690.0000 SQ.FT.
LREF 1290.3000 IN.
BREF 1290.3000 IN.
XMRP 1360.1000 IN. XT
YMRP .0000 IN. YT
ZMRP 416.4000 IN. ZT
SCALE .0100

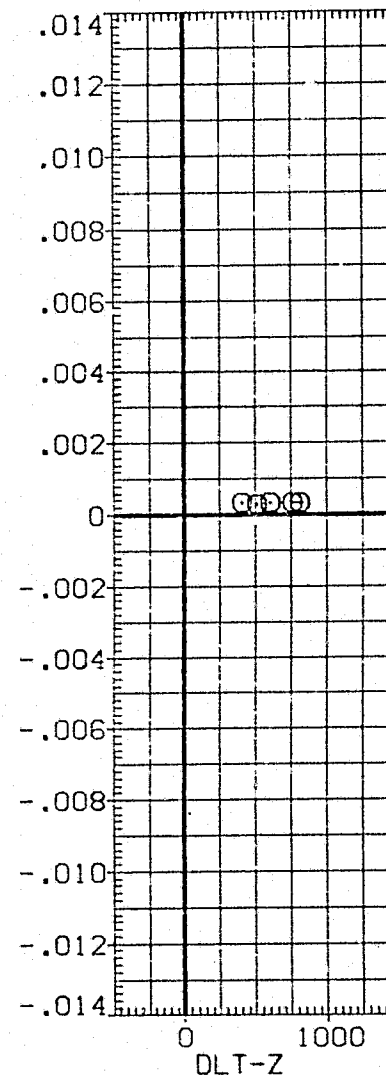
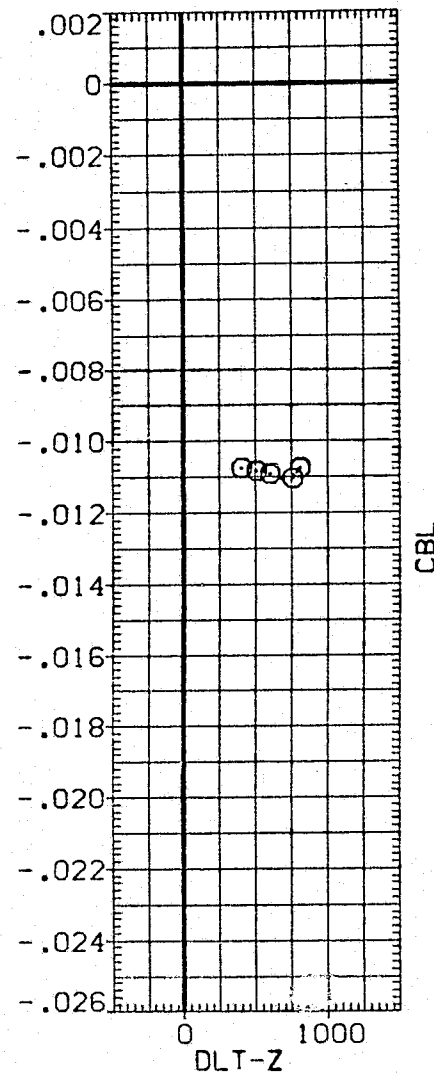
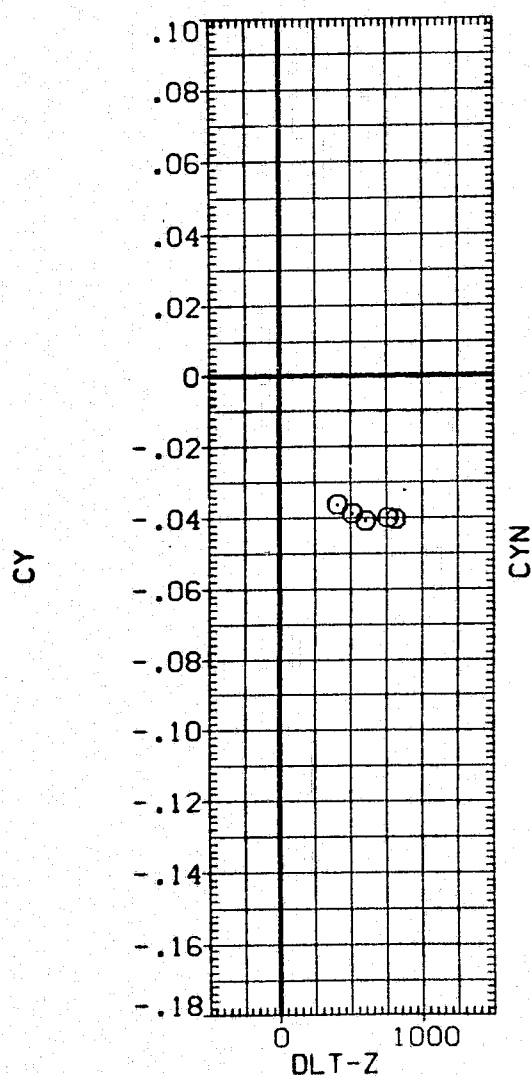


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO99)

SYMBOL	DLT-X		PARAMETRIC VALUES			
O	.529	DLT-Y	.000	ALPHA	.000	
		BETA	3.000	DLTALF	-20.000	
		DLTBTA	.000	MACH	5.930	
		AILRON	.000	ELEVON	15.000	
		GRID	14.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

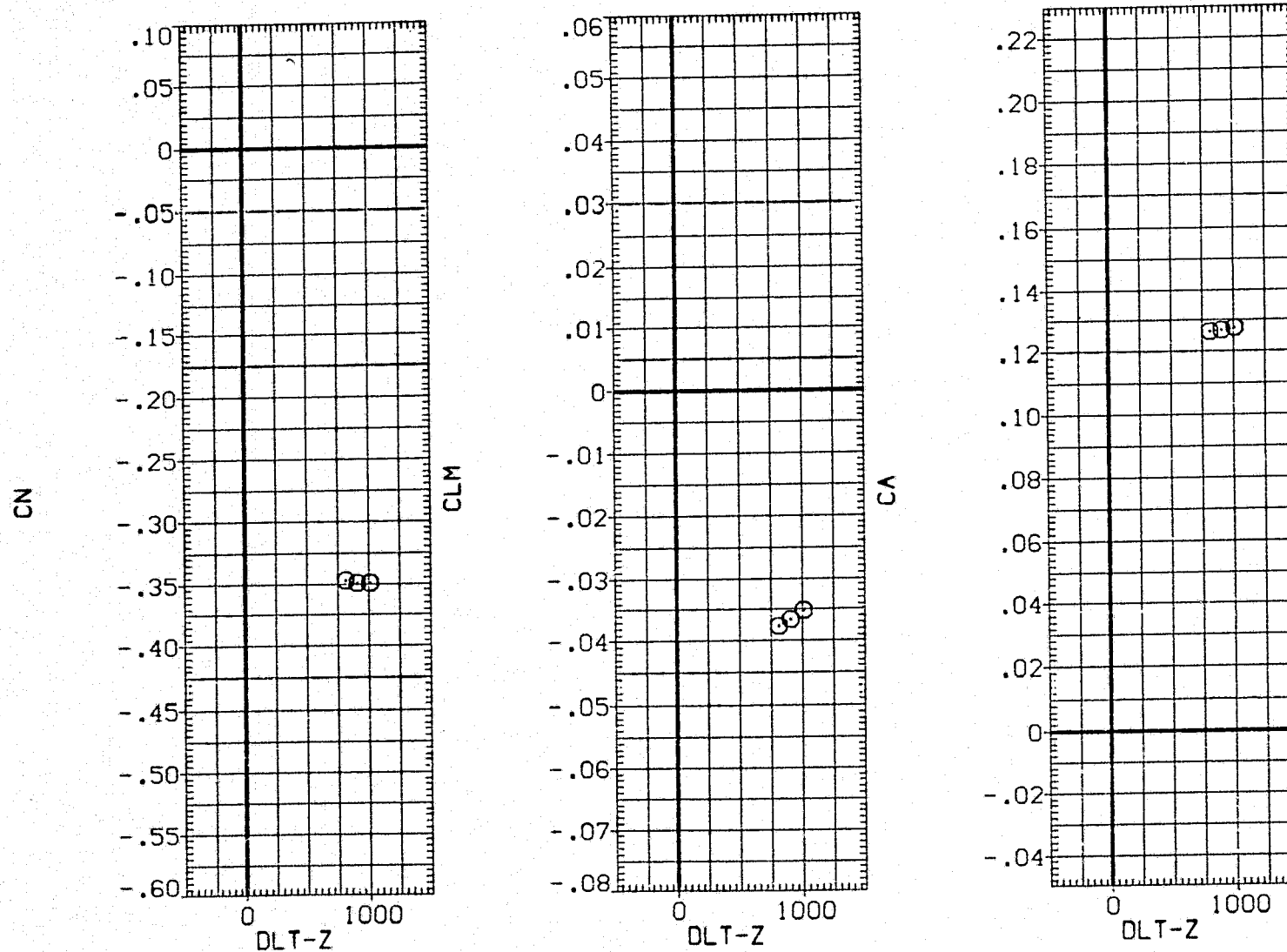


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO99)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.529		.000	.000
		BETA	3.000	-20.000
		DLTBTA	.000	5.930
		AILRON	.000	15.000
		GRID	14.000	

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

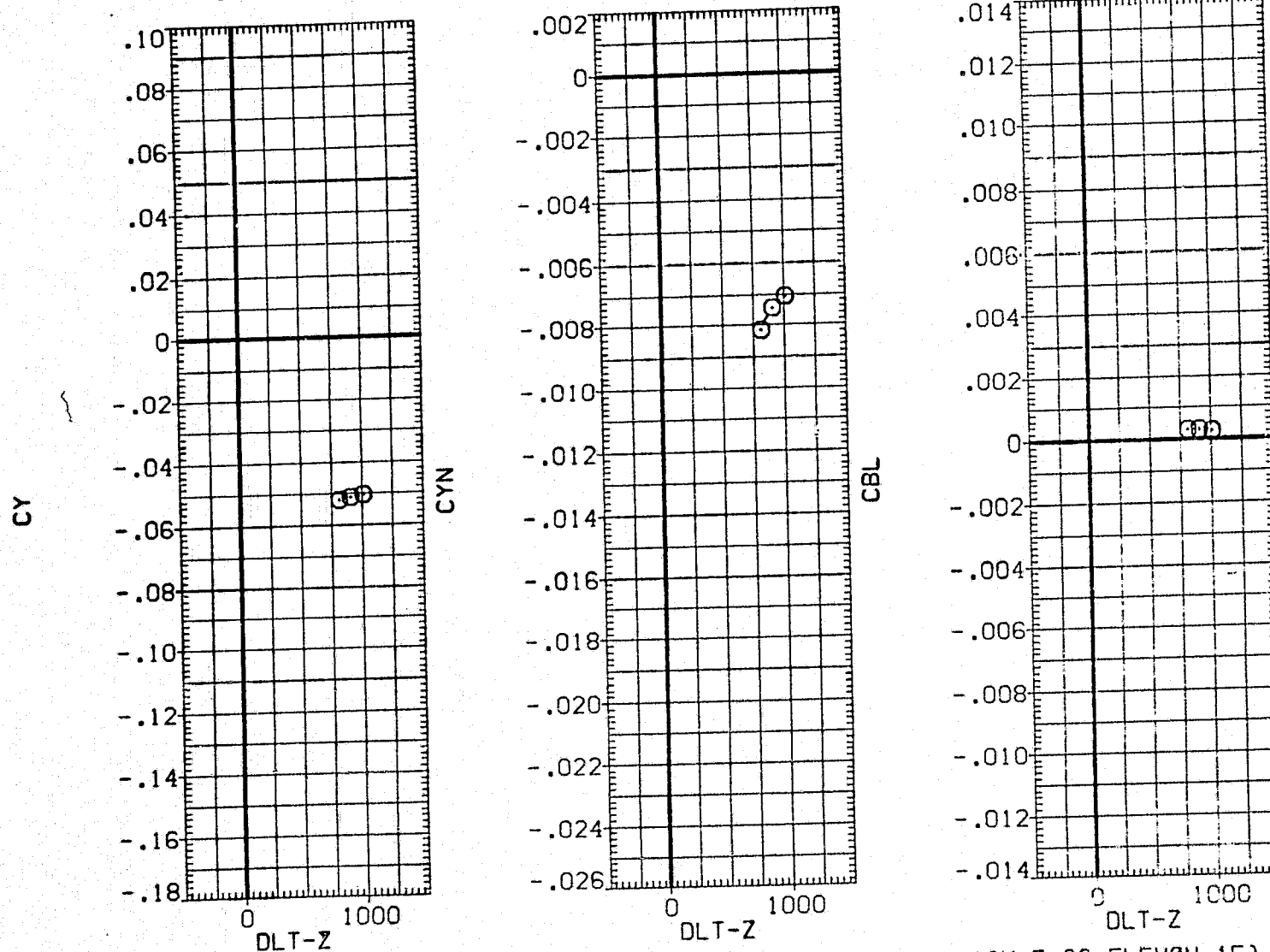


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS. (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR104)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.579	.000	BETA	.000	.000
□	400.580	.000	DLTBT	.000	5.930
		.000	AILRON	.000	15.000
		12.000	GRID		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

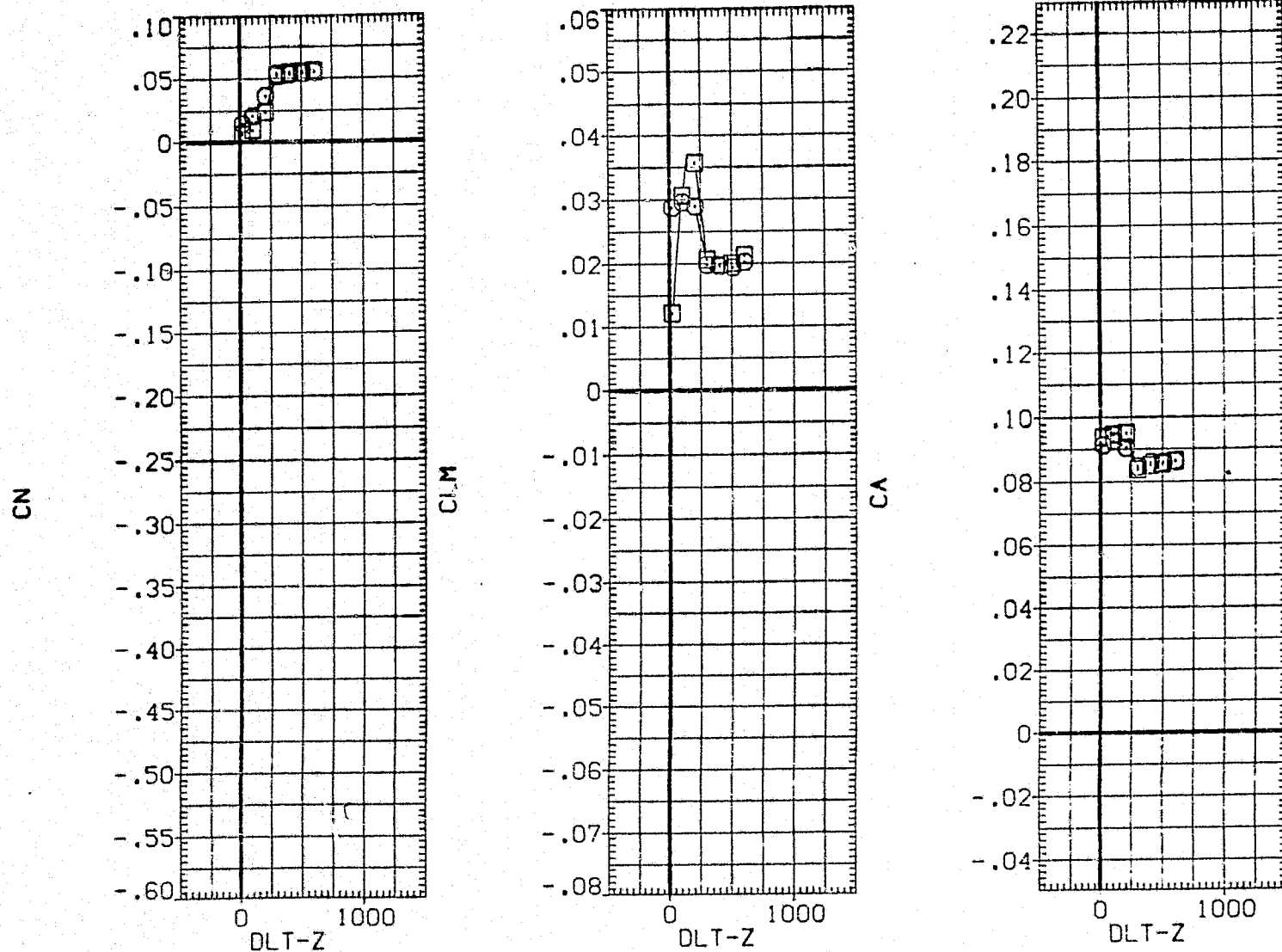


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR104)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.579		.000	.000	5.000	
□	400.580		.000	.000	.000	
		DLTBT	.000		5.930	
		AILRON	.000		15.000	
		GRID	12.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

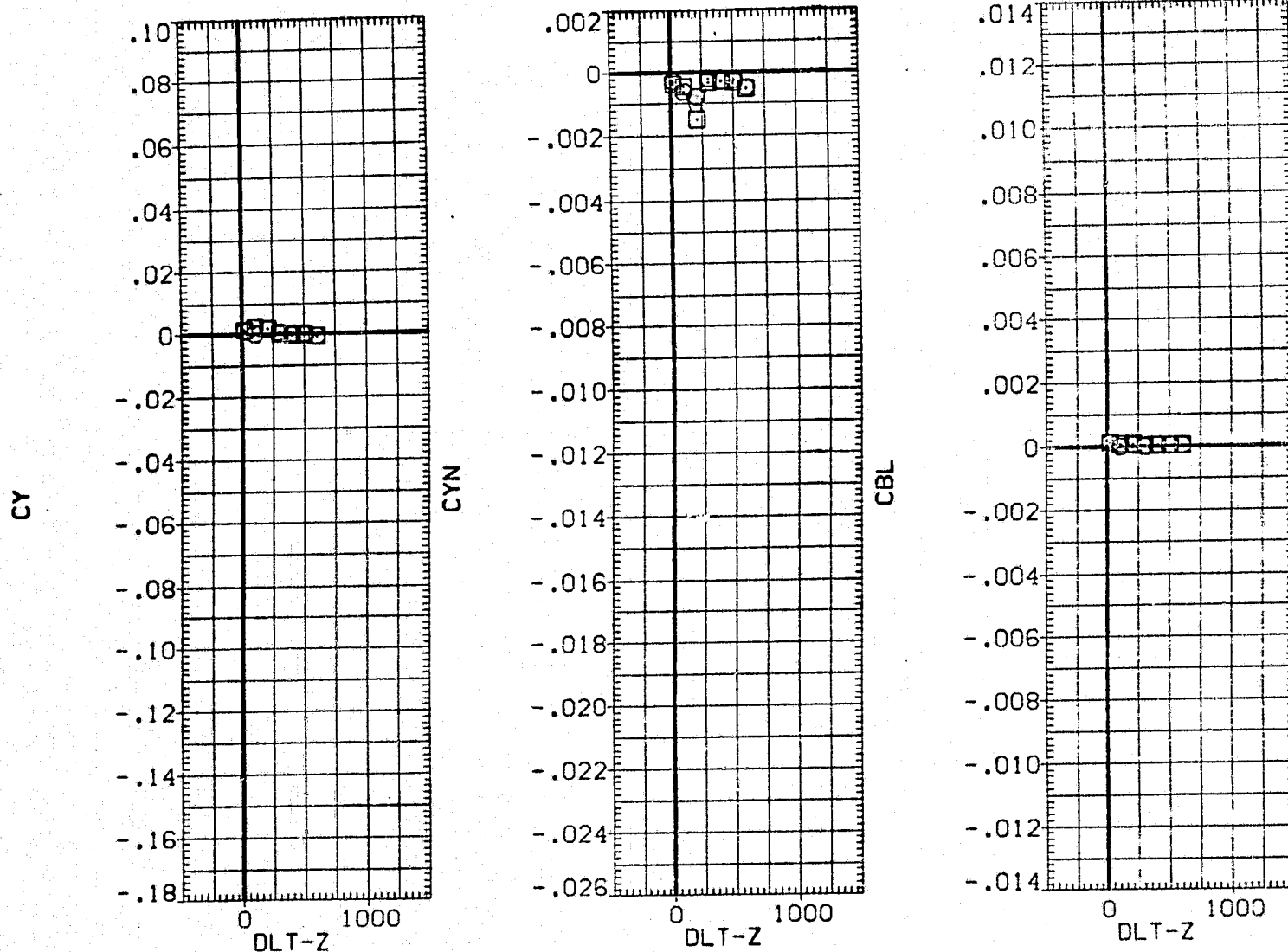


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR105)

SYMBOL		DLT-X	PARAMETRIC VALUES			
○		.447	DLT-Y	.000	ALPHA	5.000
□		400.420	BETA	.000	DLTALF	-10.000
			DLTBTA	.000	MACH	5.930
			AILRON	.000	ELEVON	15.000
			GRID	12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

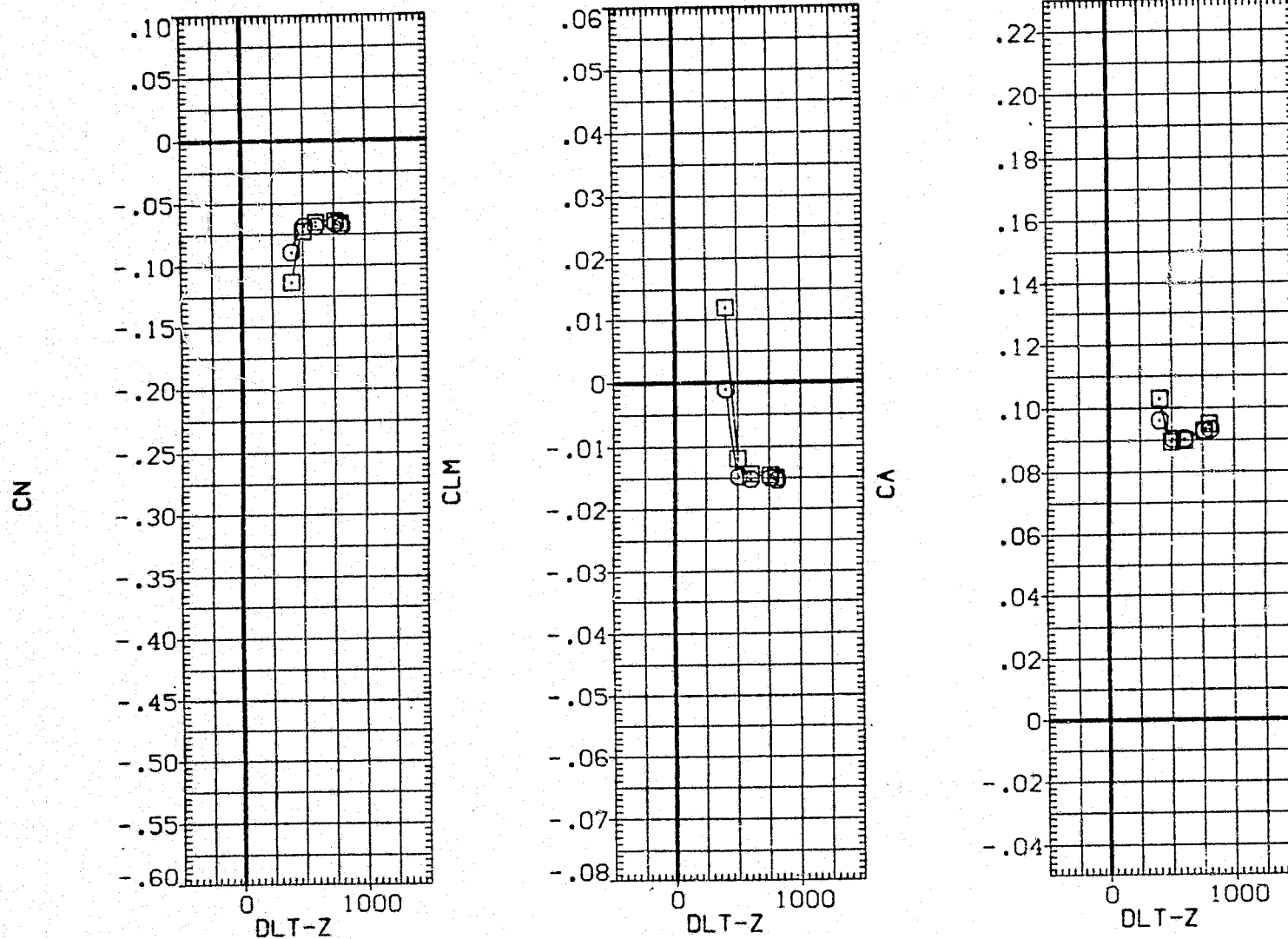


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR105)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.447	BETA	.000	DLTALF	-10.000
□	400.420	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

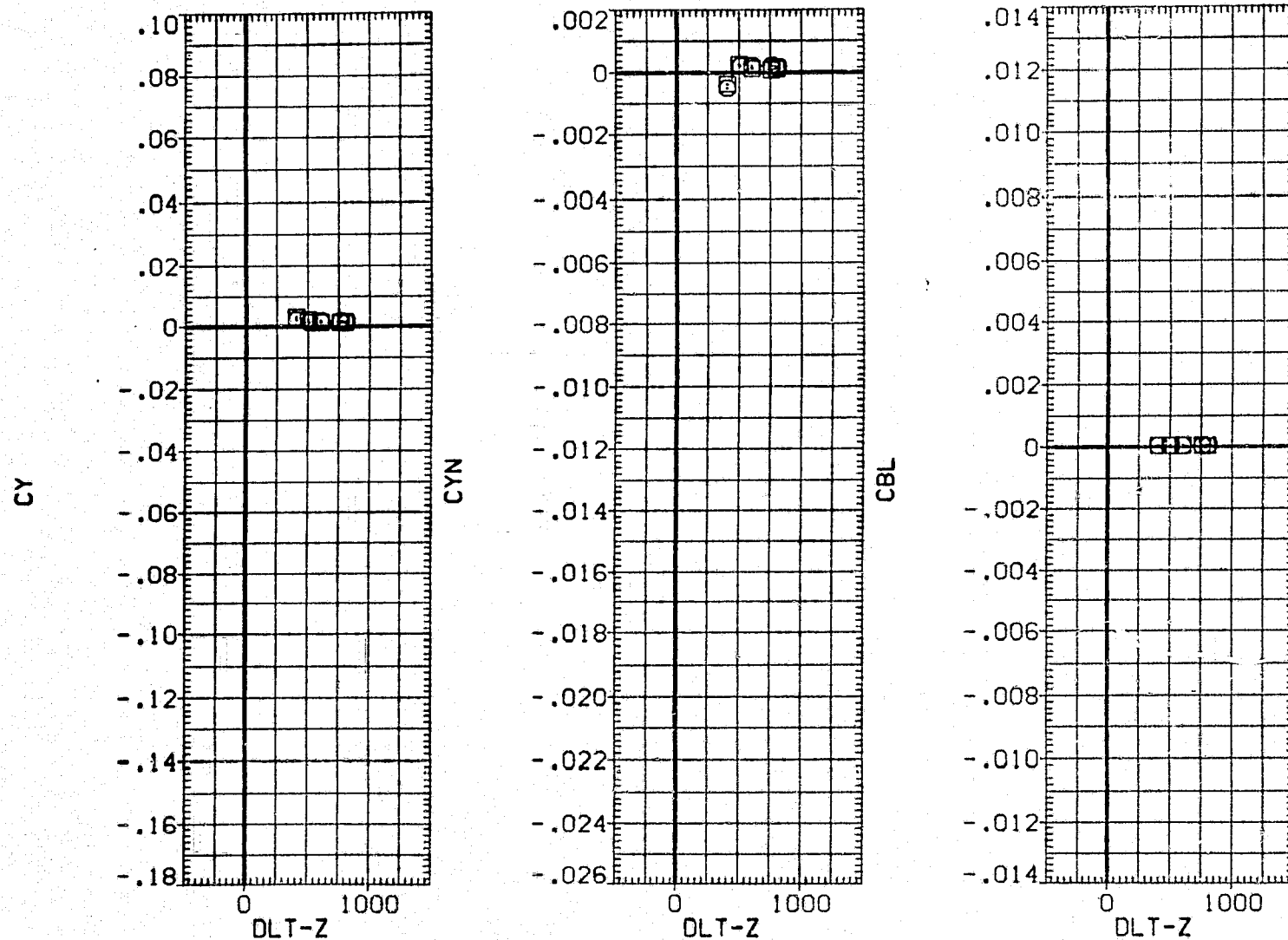


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR107)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.389	.000	ALPHA	5.000
□	400.410	.000	DLTALF	-20.000
		.000	MACH	5.930
		.000	ELEVON	15.000
		12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

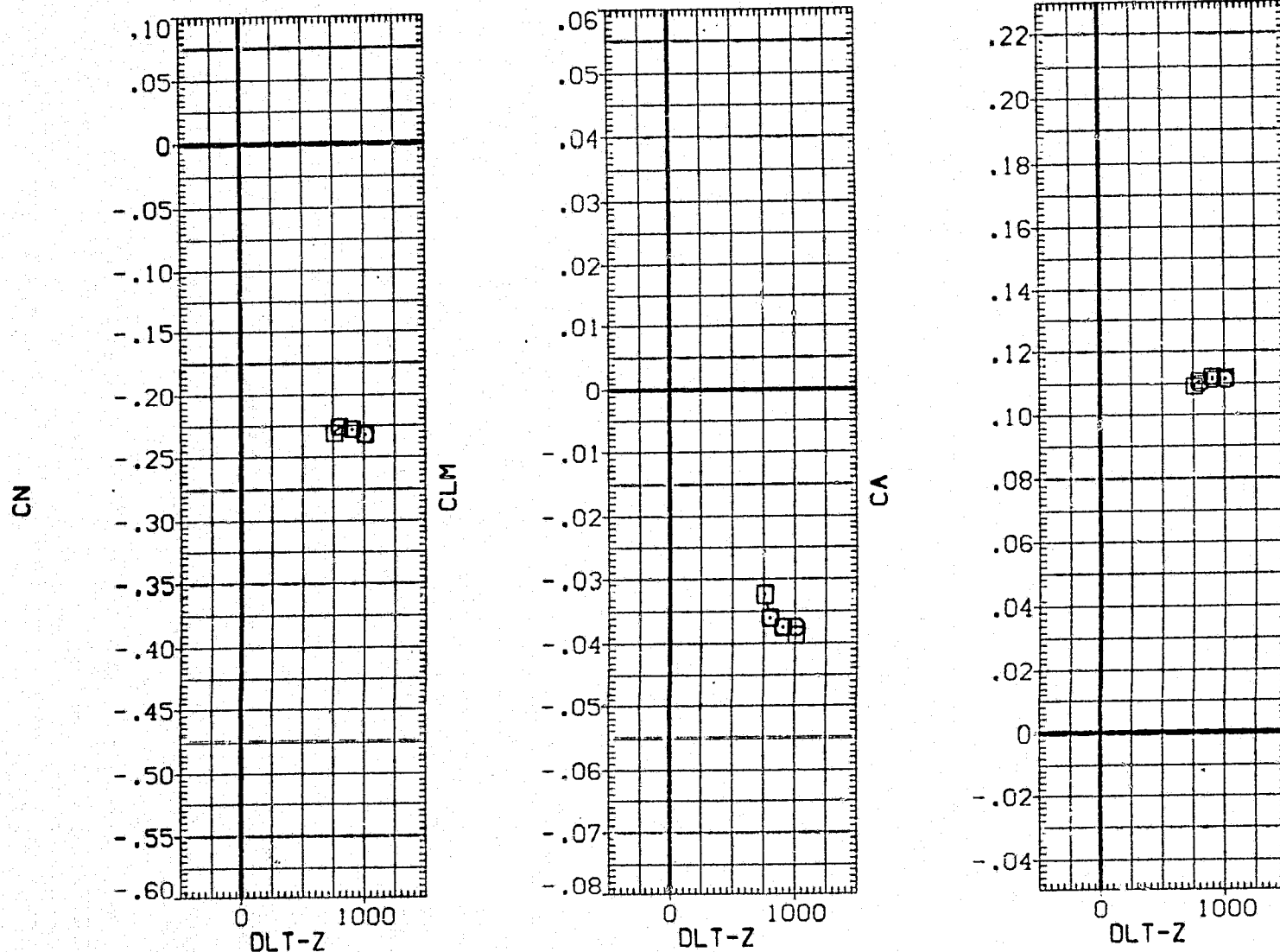


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR107)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.389		ALPHA	5.000
□	400.410	BETA	DLTALF	-20.000
		DLTBTA	MACH	5.930
		ATLRON	ELEVON	15.000
		GRID		12.000

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

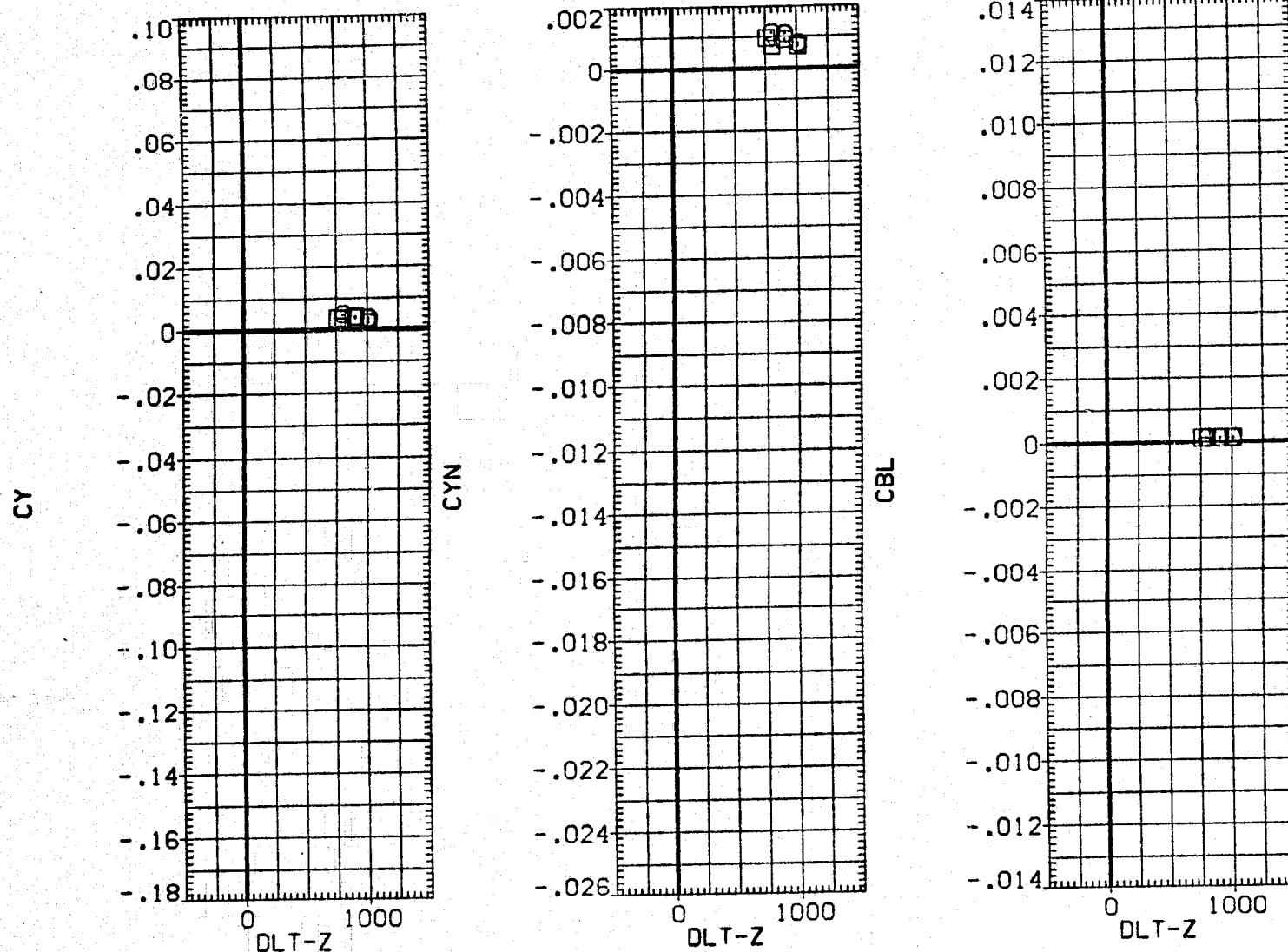
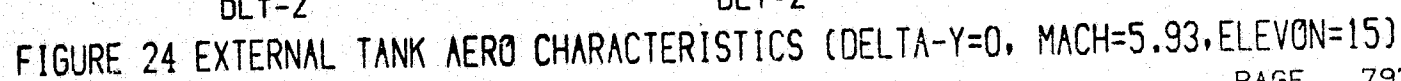


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

SYMBOL		PARAMETRIC VALUES					
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 10px; height: 10px; border: 1px solid black; border-radius: 50%;"></div> <div style="width: 10px; height: 10px; border: 1px solid black; border-radius: 50%;"></div> </div>	DLT-X	.398	DLT-Y	.000	ALPHA	-5.000	
				BETA	.000	DLTALF	.000
	400.490			DLTBTB	.000	MACH	5.930
				AILRON	.000	ELEVON	15.000
				GRID	11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	1290.3000	IN.
GRF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	



AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR108)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.398	BETA	.000	ALPHA
□	400.490	DLTBTBTA	.000	DLTALF
		AILRON	.000	MACH
		GRID	11.000	ELEVON
				15.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

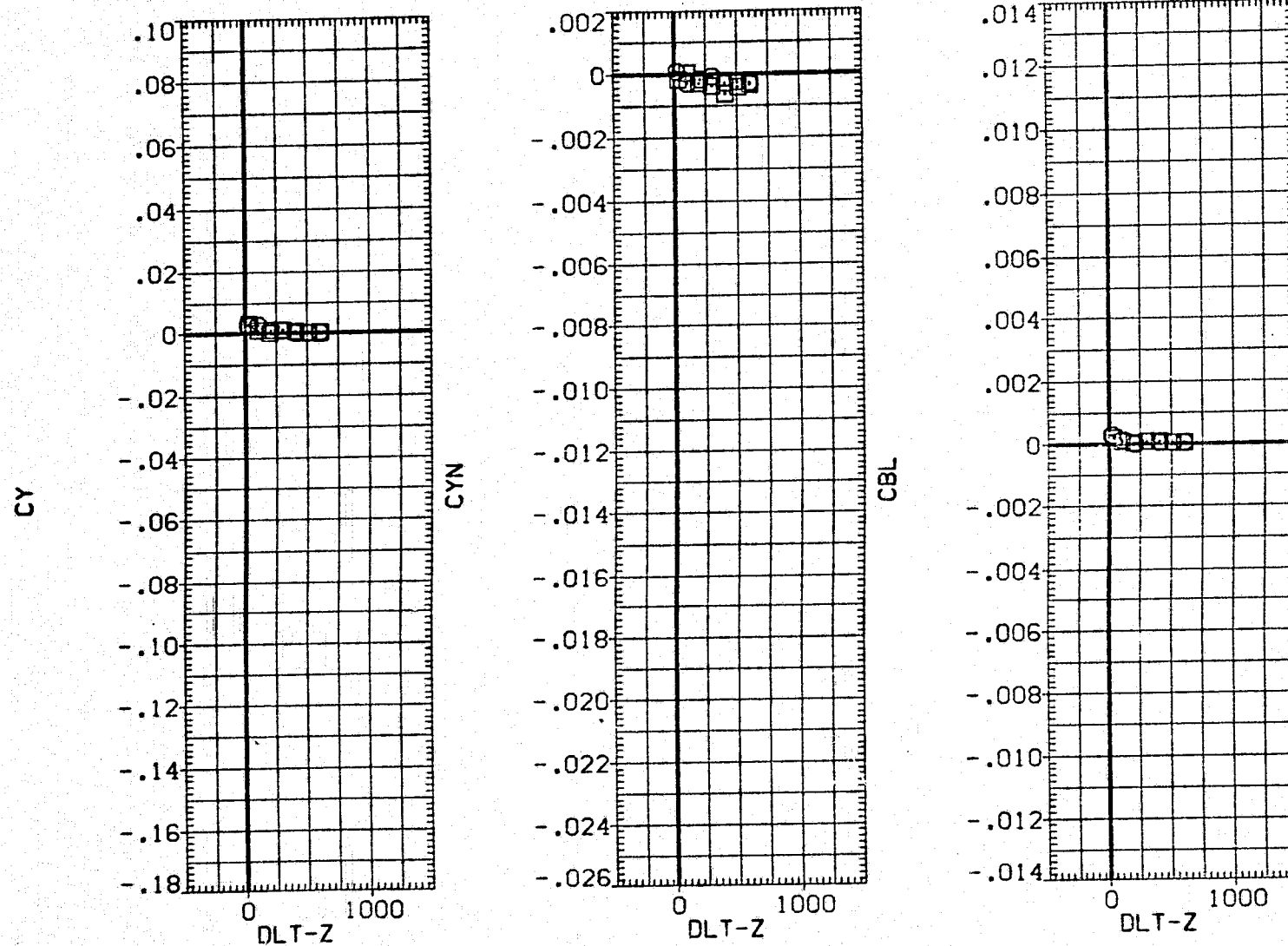


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR109)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.414	BETA	.000	-5.000	
□	400.490	DLTBTA	.000	-10.000	
		AILRON	.000	5.930	
		GRID	11.000	15.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

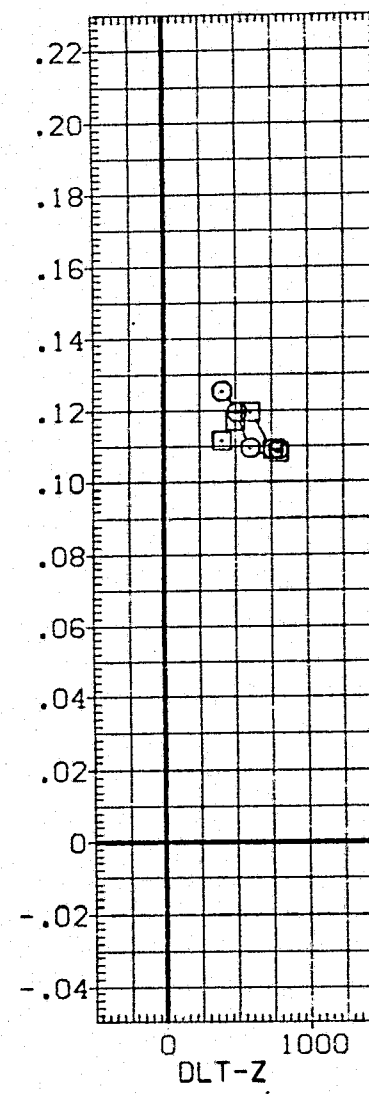
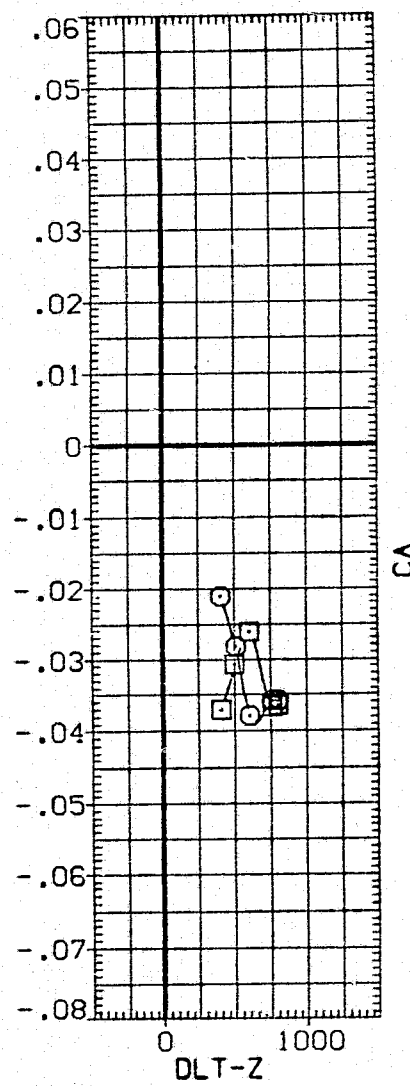
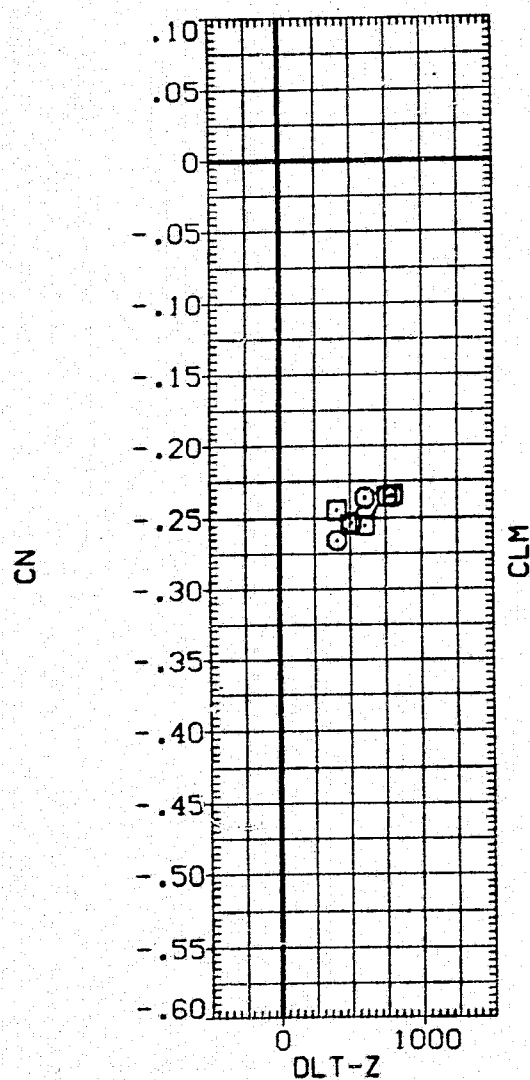


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR109)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.414	.000	ALPHA	-5.000
□	400.490	.000	DLTALF	-10.000
		.000	MACH	5.930
		.000	ELEVON	15.000
		11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

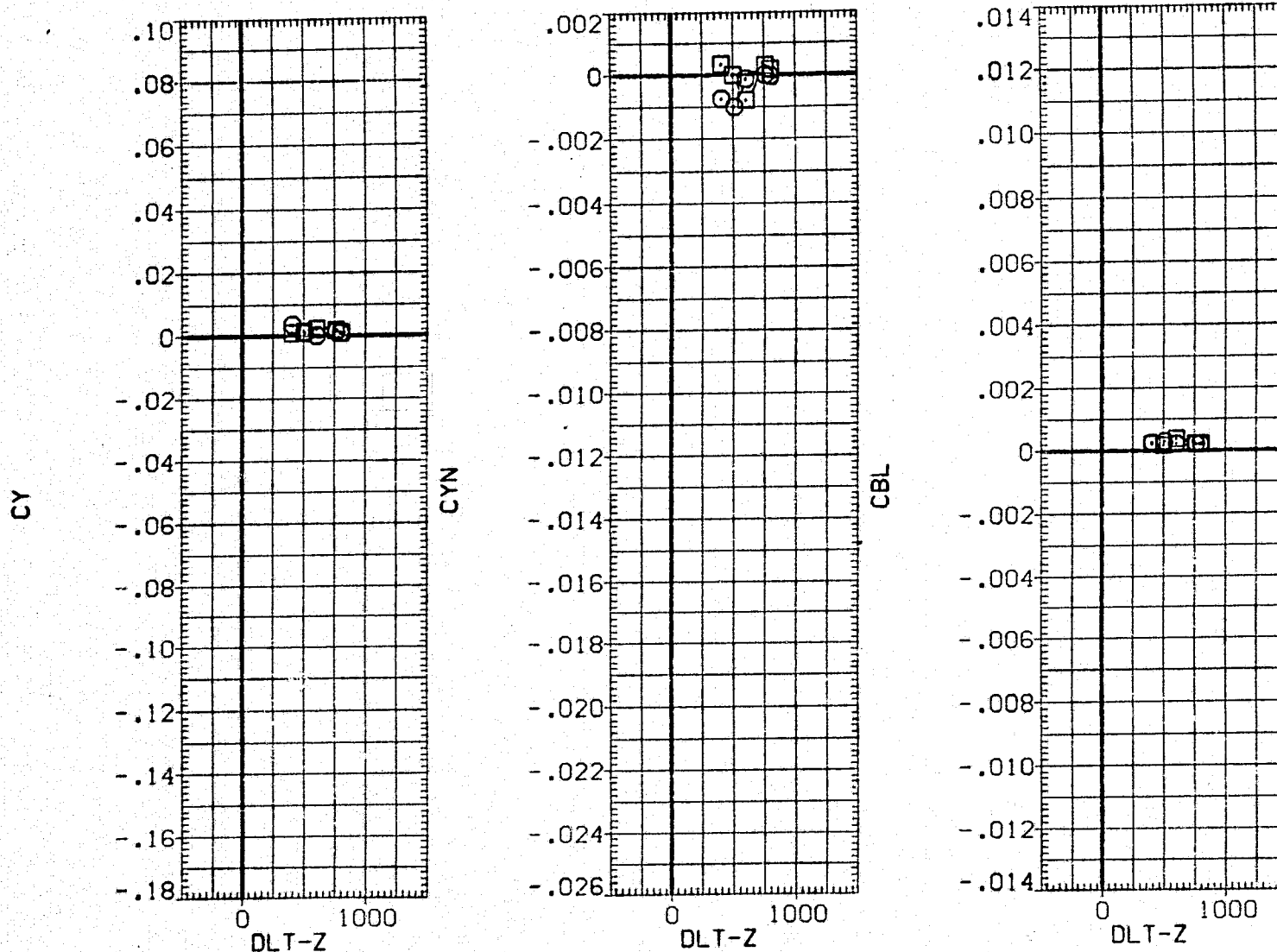


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR111)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	-5.000
○	.375	.000	BETA	.000	DLTALF
□	400.440	.000	DLTBT	.000	MACH
		.000	AILRON	.000	ELEVON
		.000	GRID	.11.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

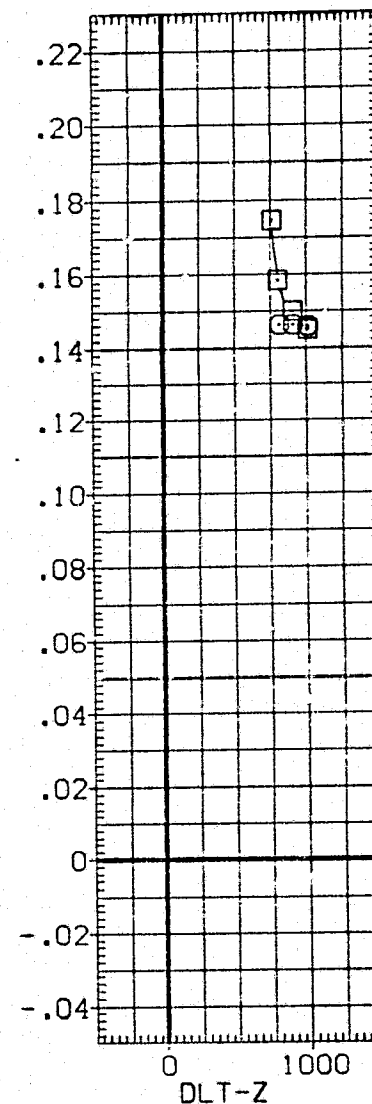
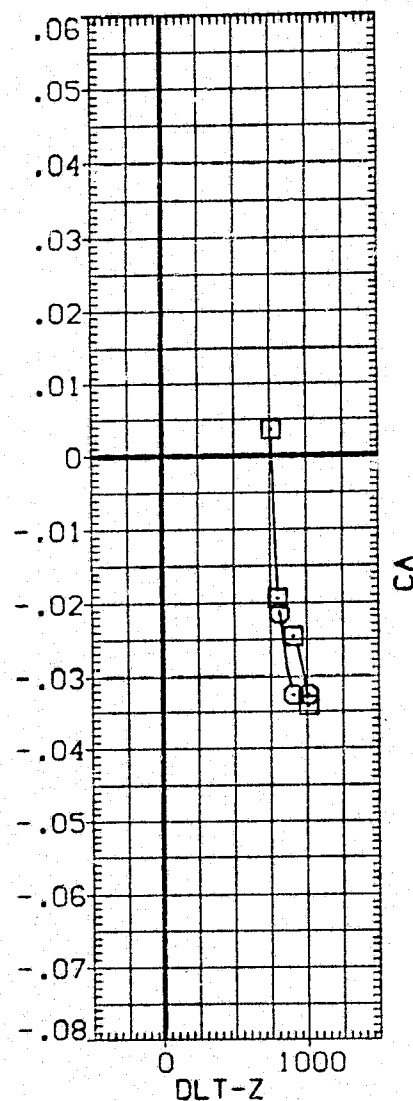
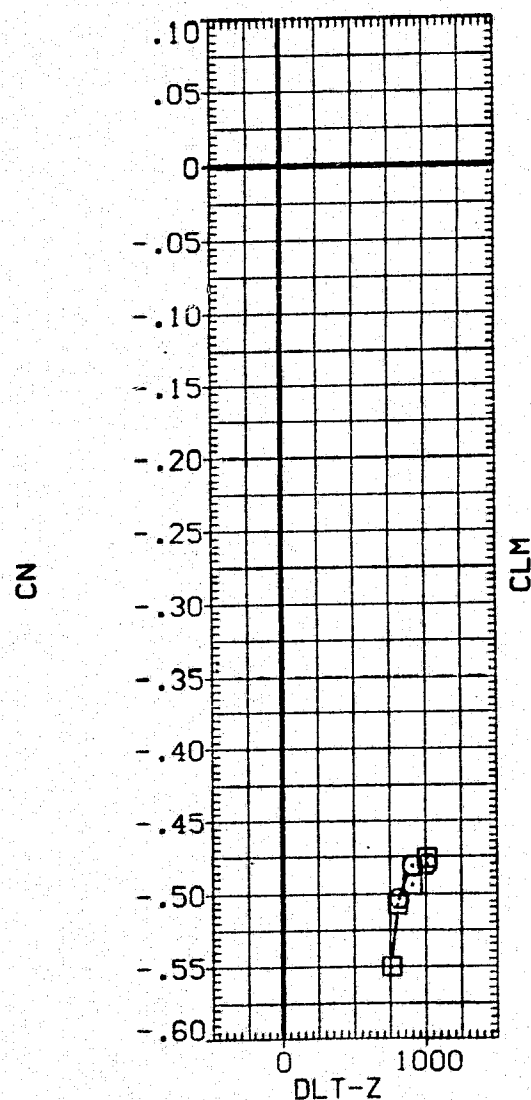


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR111)

SYMBOL ○ □	DLT-X	DLT-Y	PARAMETRIC VALUES	
	.375	.000	ALPHA	-5.000
	400.440	.000	DLTALF	-20.000
		.000	MACH	5.930
		.000	ELEVON	15.000
		11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

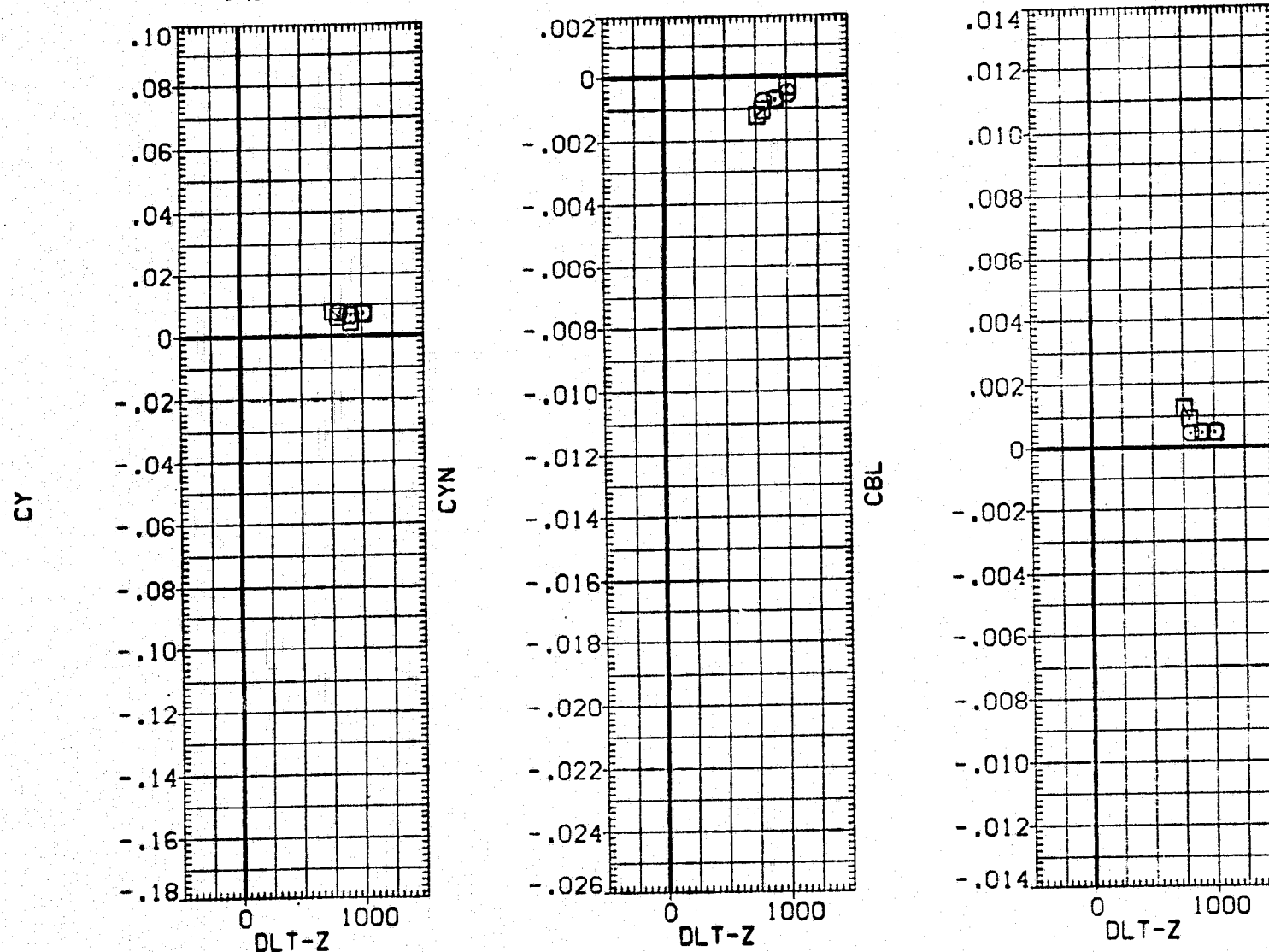


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR112)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	-10.000
○	.454	BETA	.000	DLTALF	.000
□	400.480	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	10.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

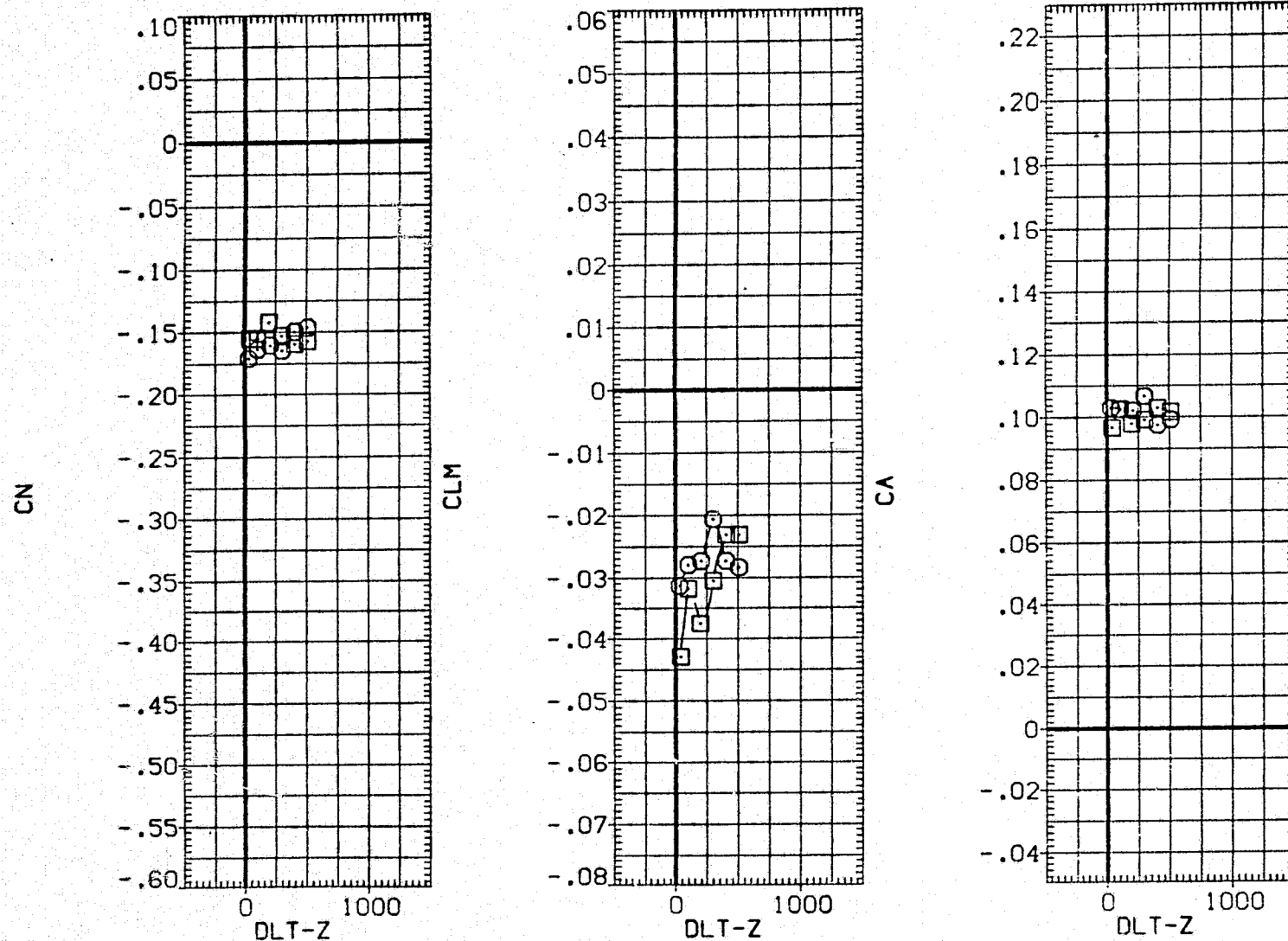


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR112)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES
○	.454	.000	ALPHA -10.000
□	400.480	.000	DLTALF .000
		DLTBTA .000	MACH 5.930
		AILRON .000	ELEVON 15.000
		GRID 10.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

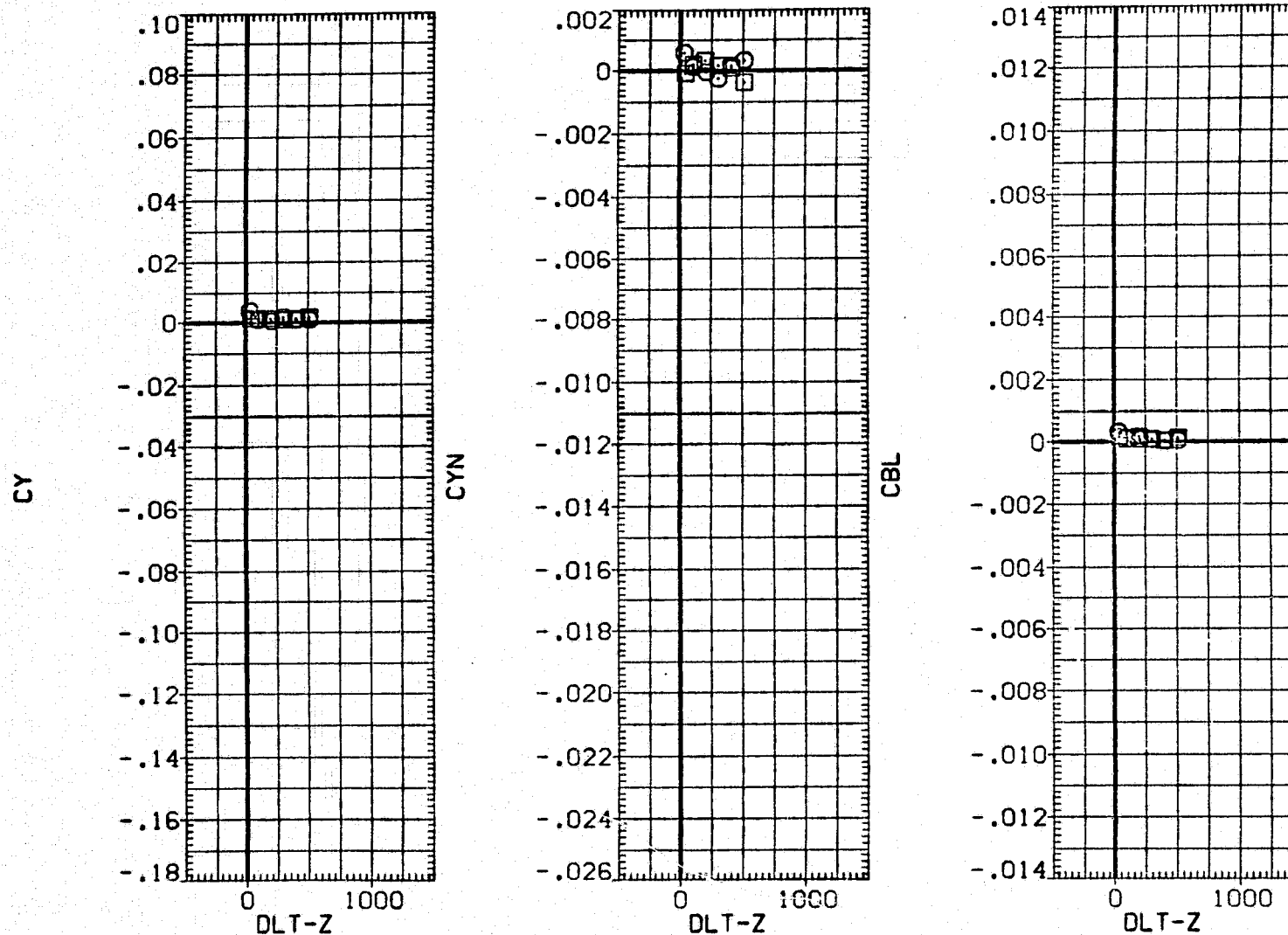


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR113)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.413	.000	ALPHA	-10.000
□	400.400	.000	DLTALF	-10.000
		.000	MACH	5.930
		.000	ELEVON	15.000
		10.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

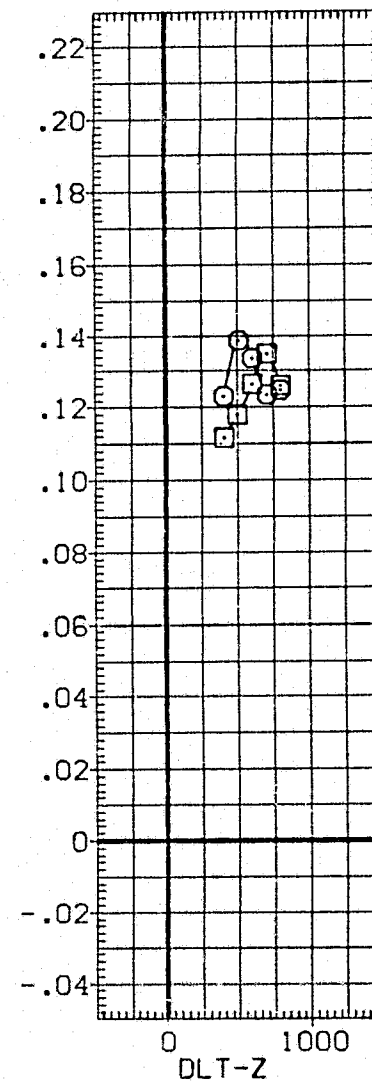
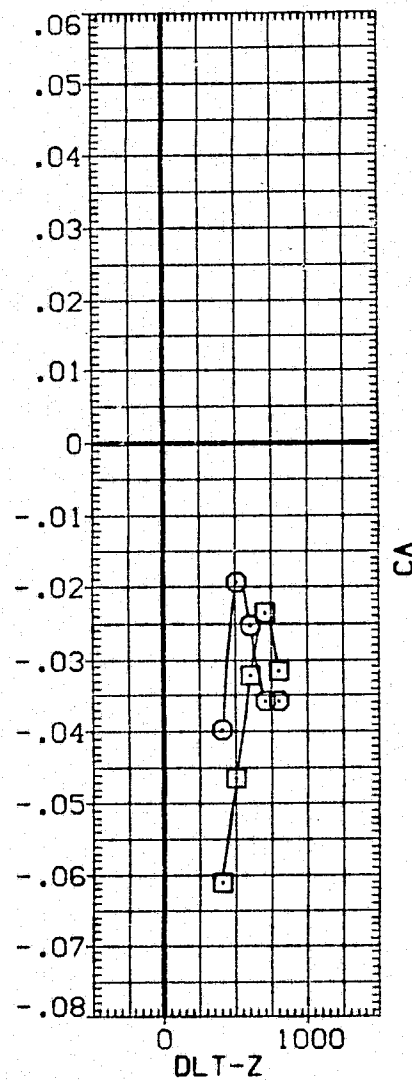
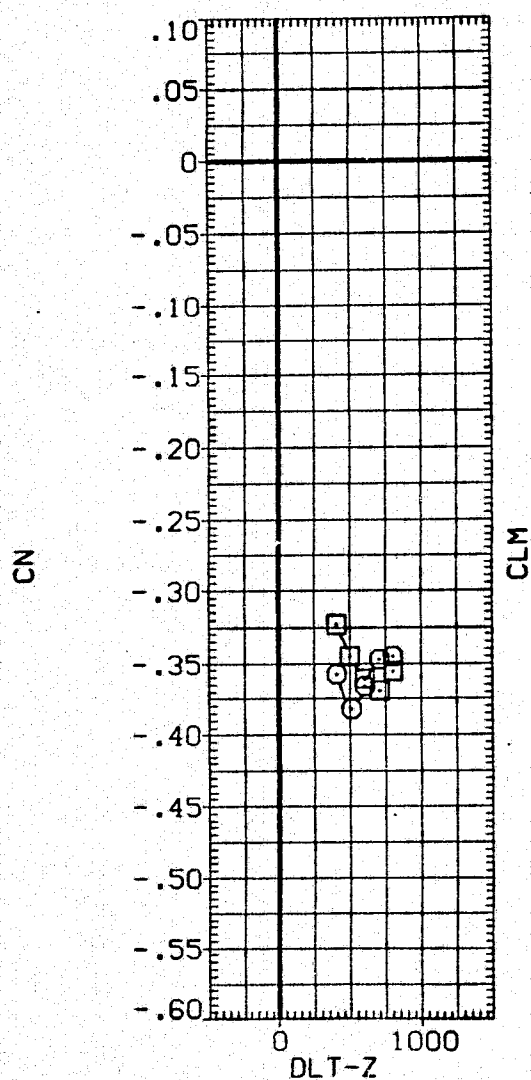


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR113)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y		ALPHA	
○	.413		.000	-10.000	
□	400.400	BETA	.000	DLTALF	-10.000
		DLTBTA	.000	MACH	5.930
		ATLRON	.000	ELEVON	15.000
		GRID	10.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

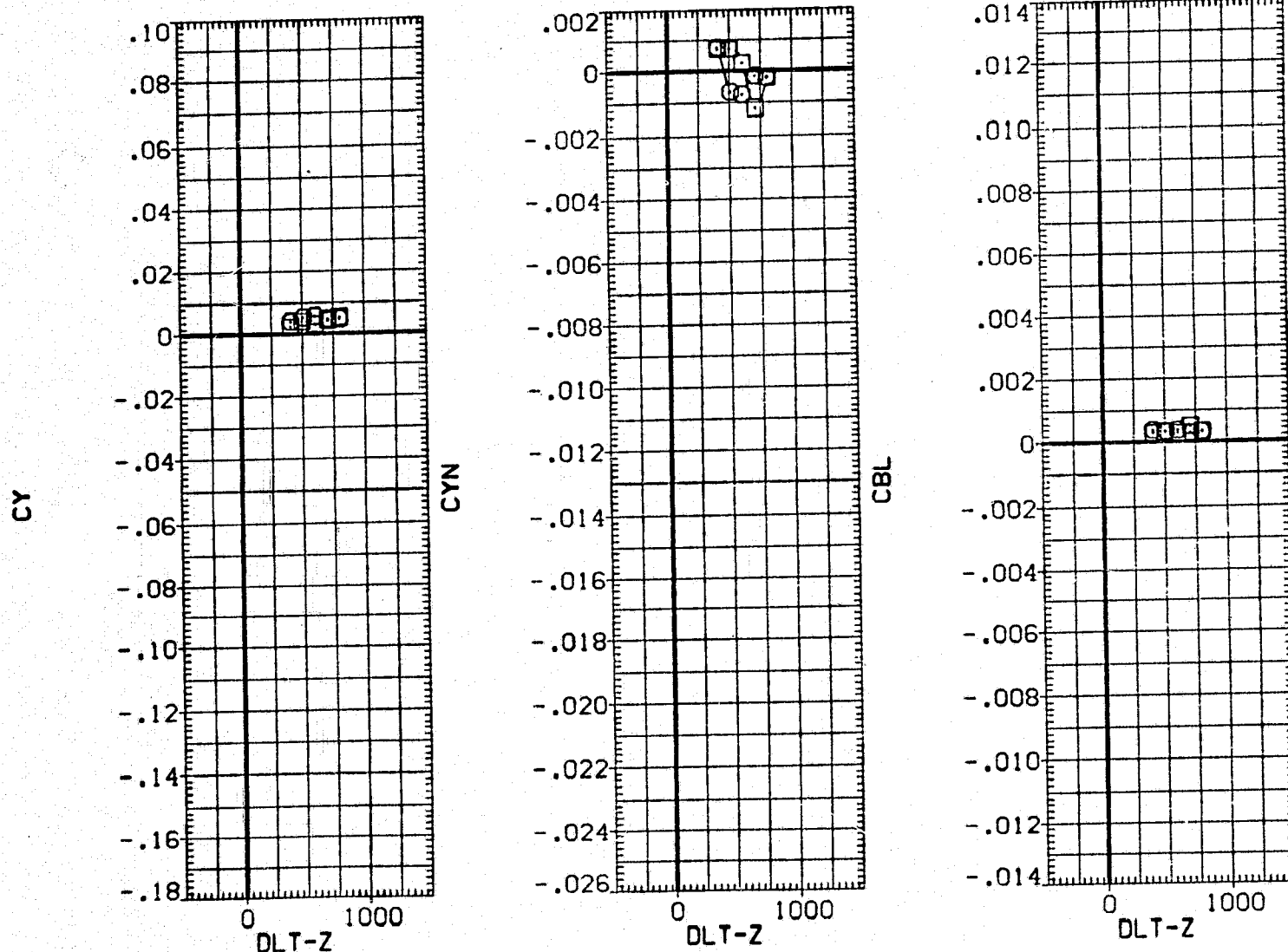


FIGURE 24 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO56)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.558	.000	DLTALF	.000	
□	400.530	.000	MACH	5.930	
		.000	ELEVON	-20.000	
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

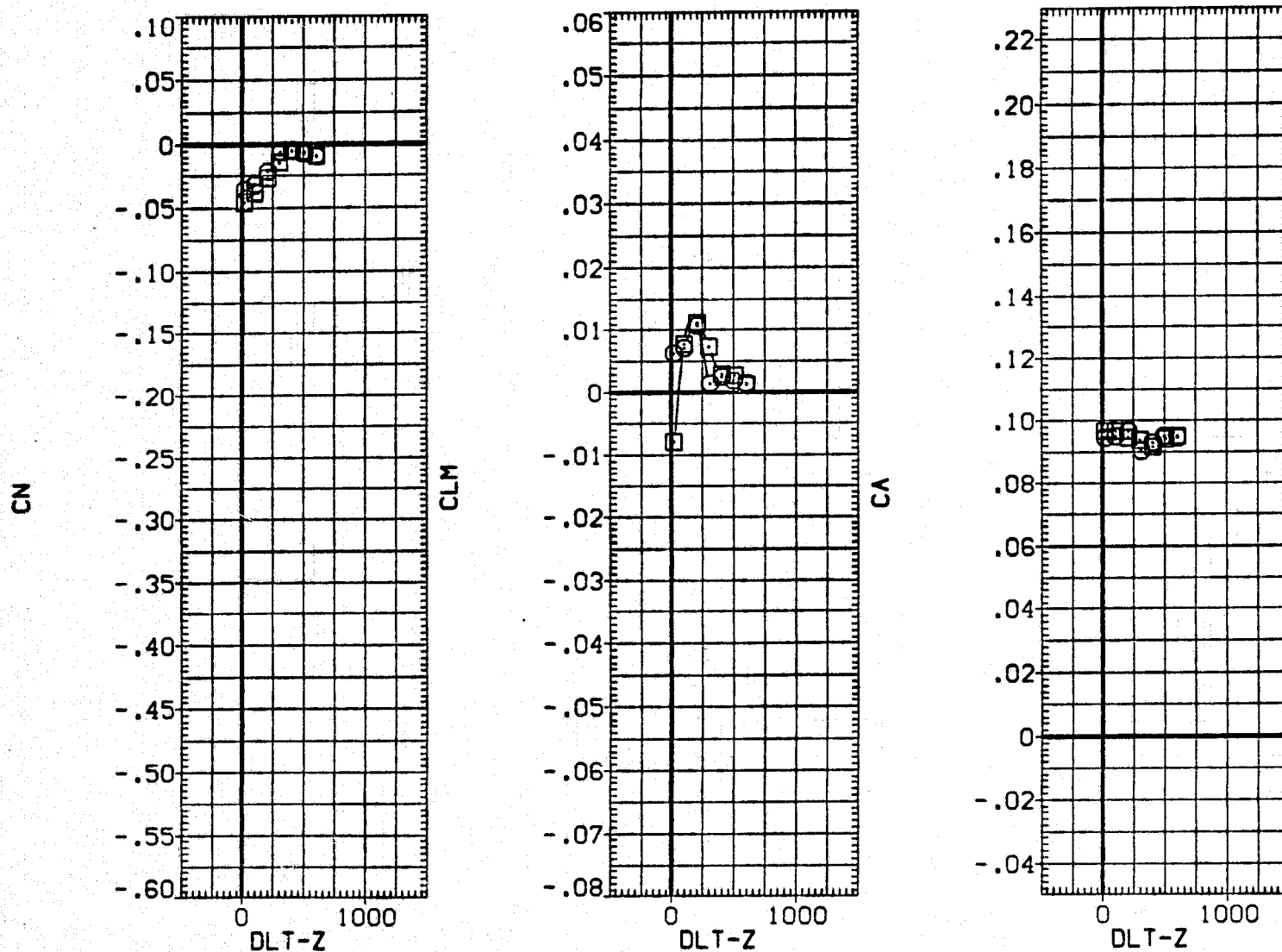


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO56)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.558	.000	ALPHA	.000
□	400.530	.000	DLTALF	.000
		.000	MACH	5.930
		.000	ELEVON	-20.000
		GRID	13.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRF	1360.1000 IN. XT
YMRF	.0000 IN. YT
ZMRF	416.4000 IN. ZT
SCALE	.0100

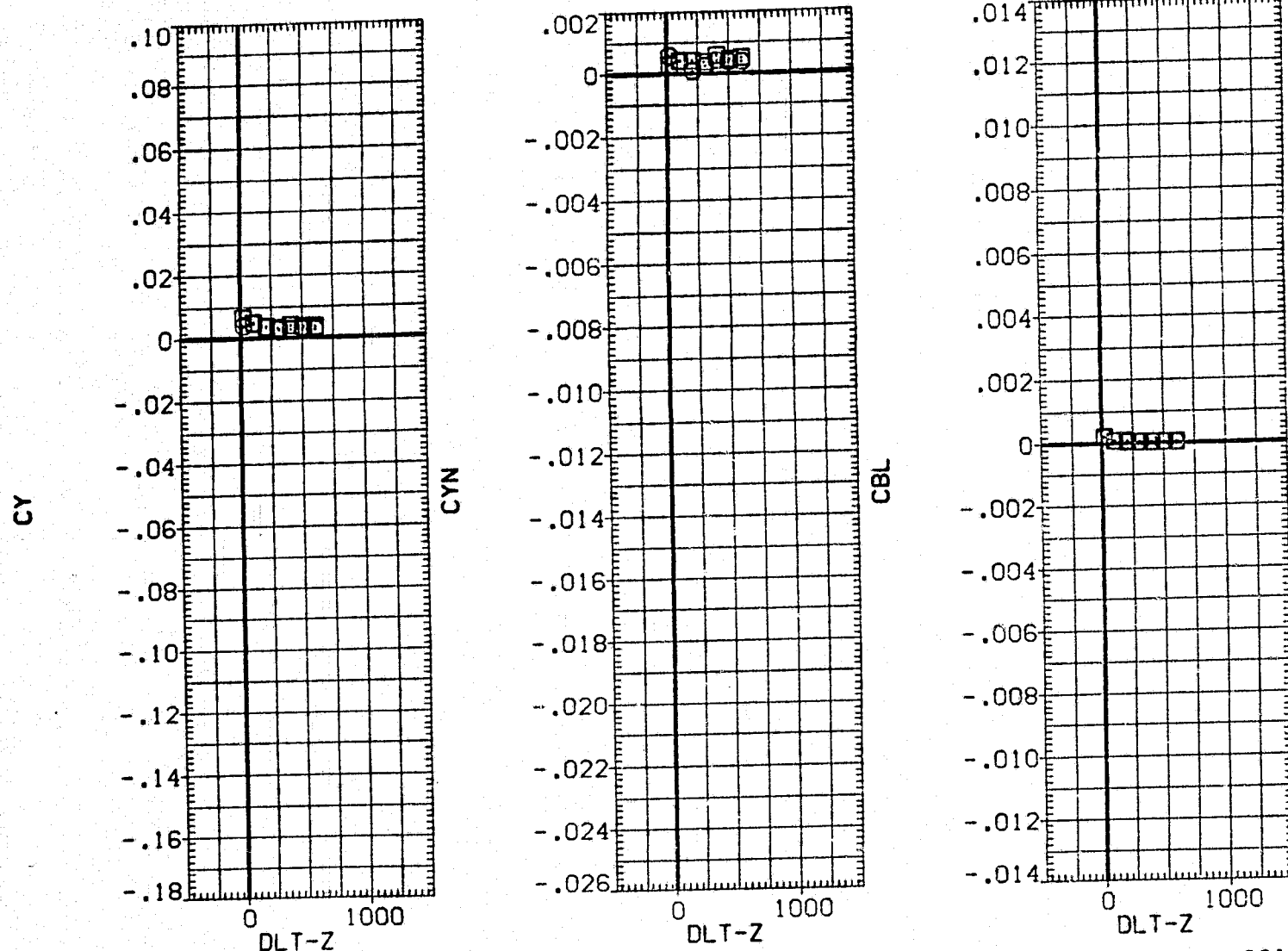


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO57)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.447	.000	ALPHA	.000
□	400.520	.000	DLTALF	-10.000
		.000	MACH	5.930
		.000	ELEVON	-20.000
		.000		
		GRID	13.000	

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

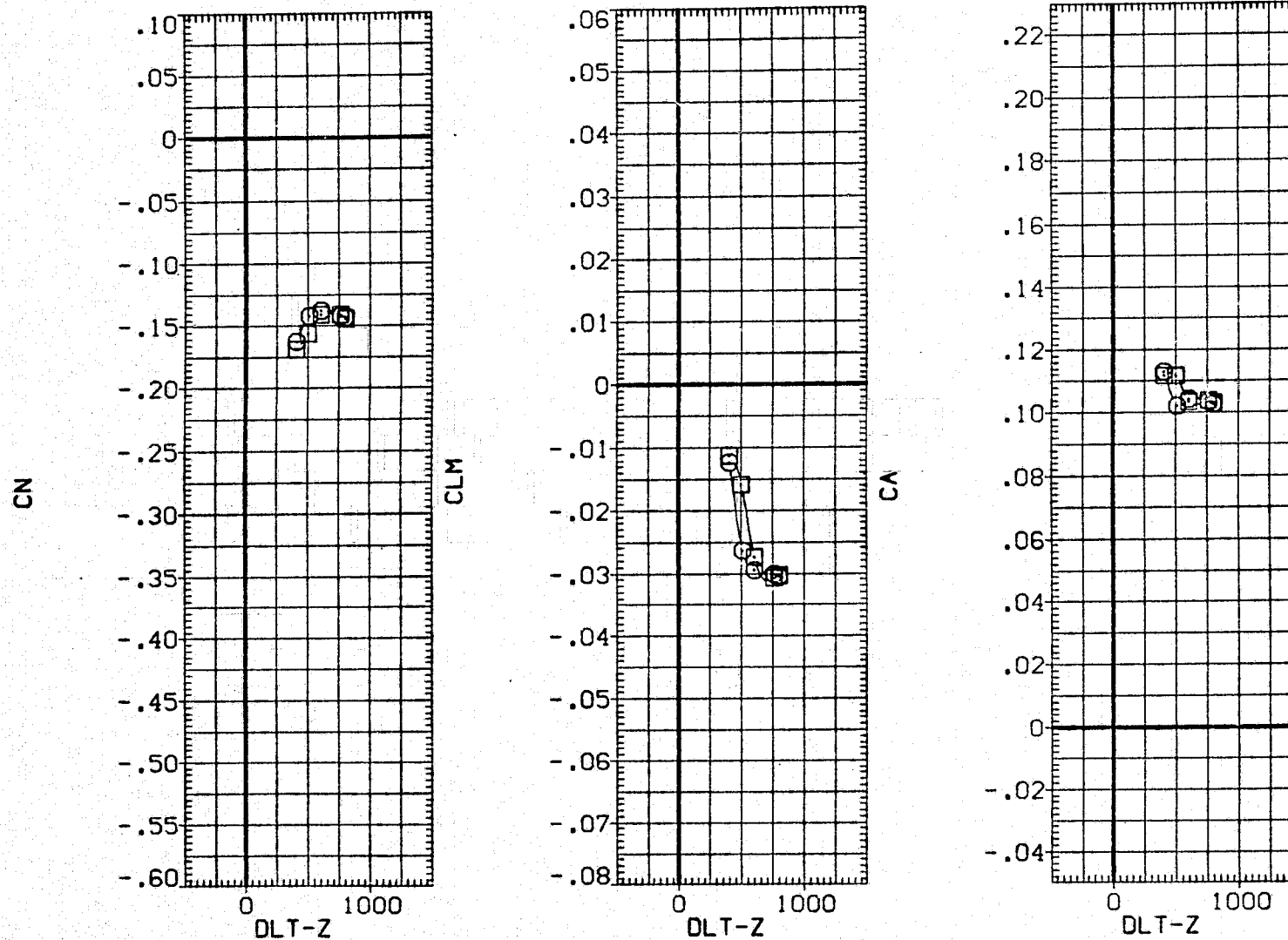


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO57)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	ELEVON
○	.447	.000	.000	-10.000	.000
□	400.520	.000	.000	5.930	-20.000
		DLTBT			
		AILRON			
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

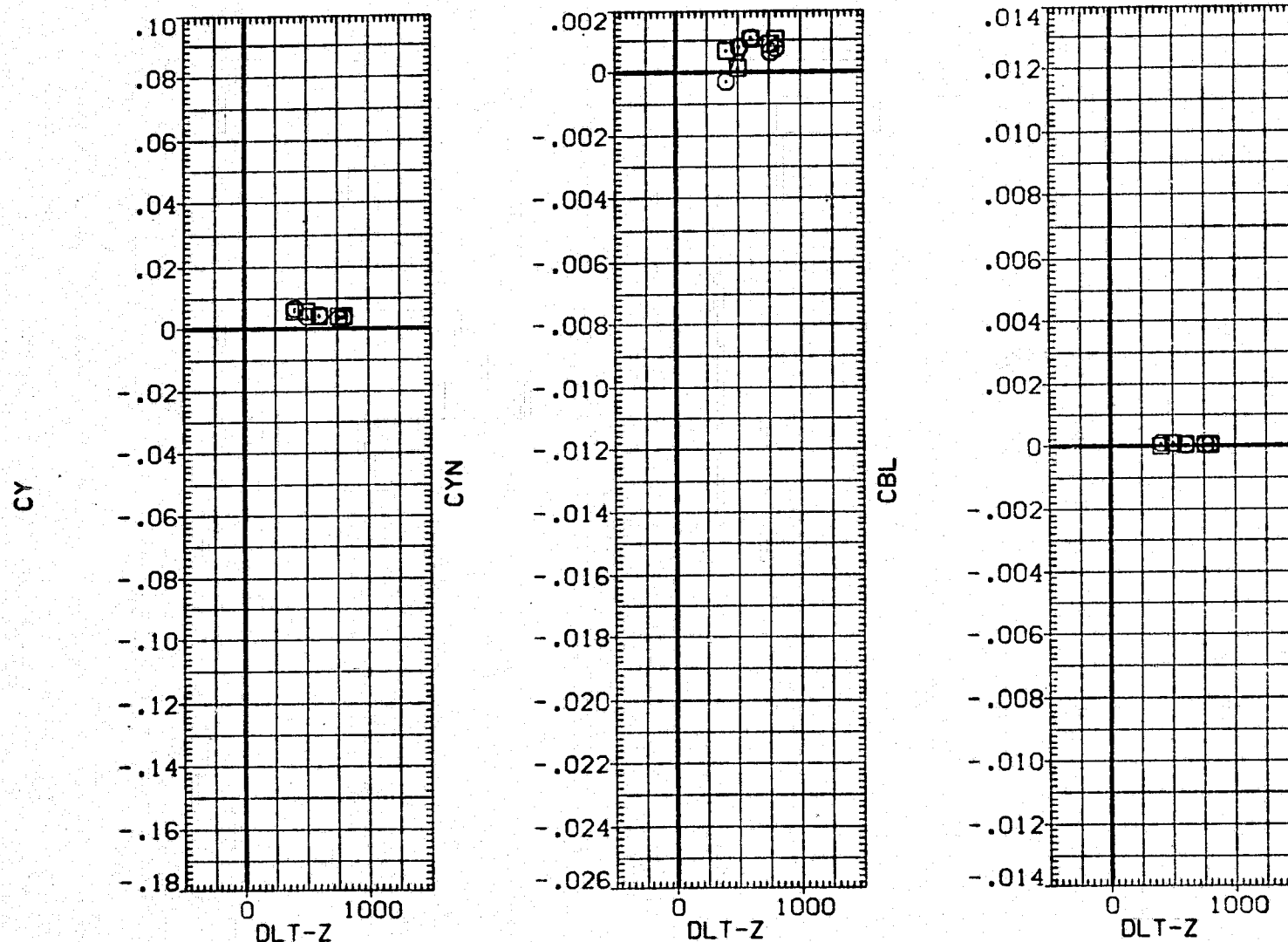


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO59)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	ALPHA	DLTALF	ELEVON
○	.442	.000	.000	-20.000	5.930
□	400.400	.000	.000	-20.000	13.000
		DLTBT	MACH		
		ATLRON			
		GRID			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

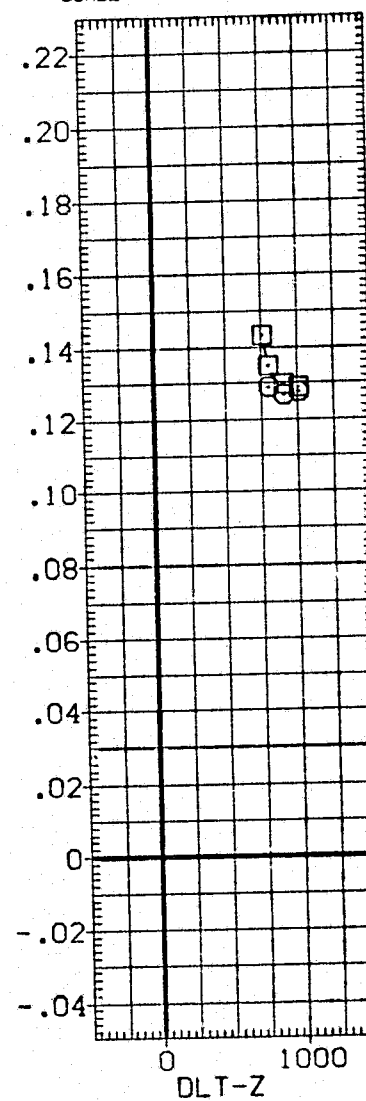
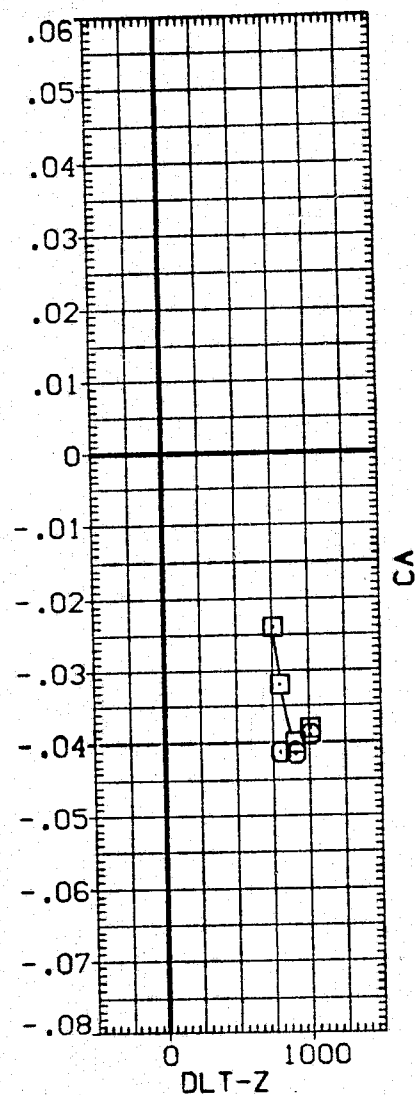
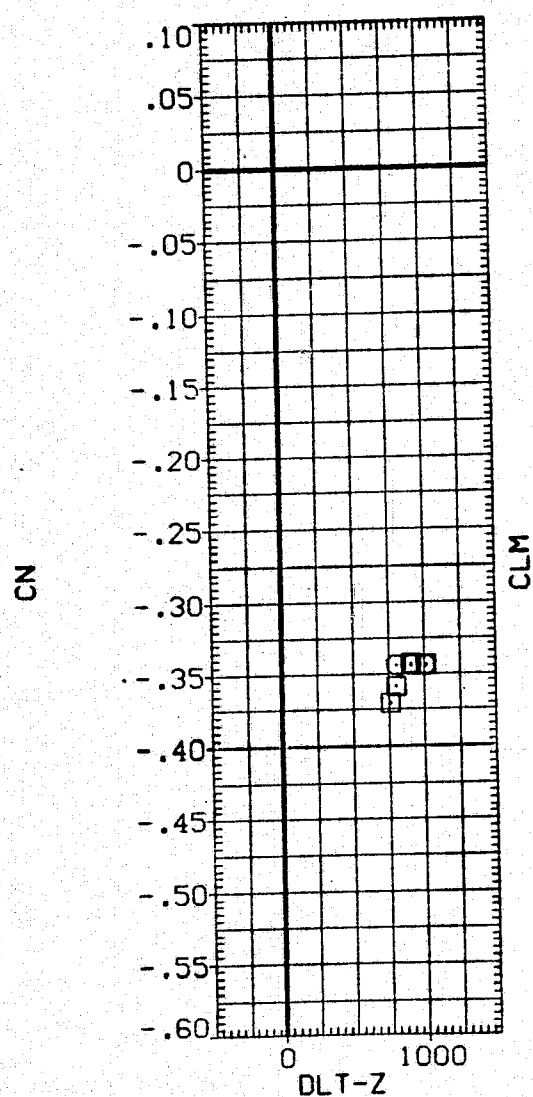


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO59)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	ALPHA	DLTALF	
○	.442	BETA	.000	-20.000	
□	400.400	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	-20.000
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

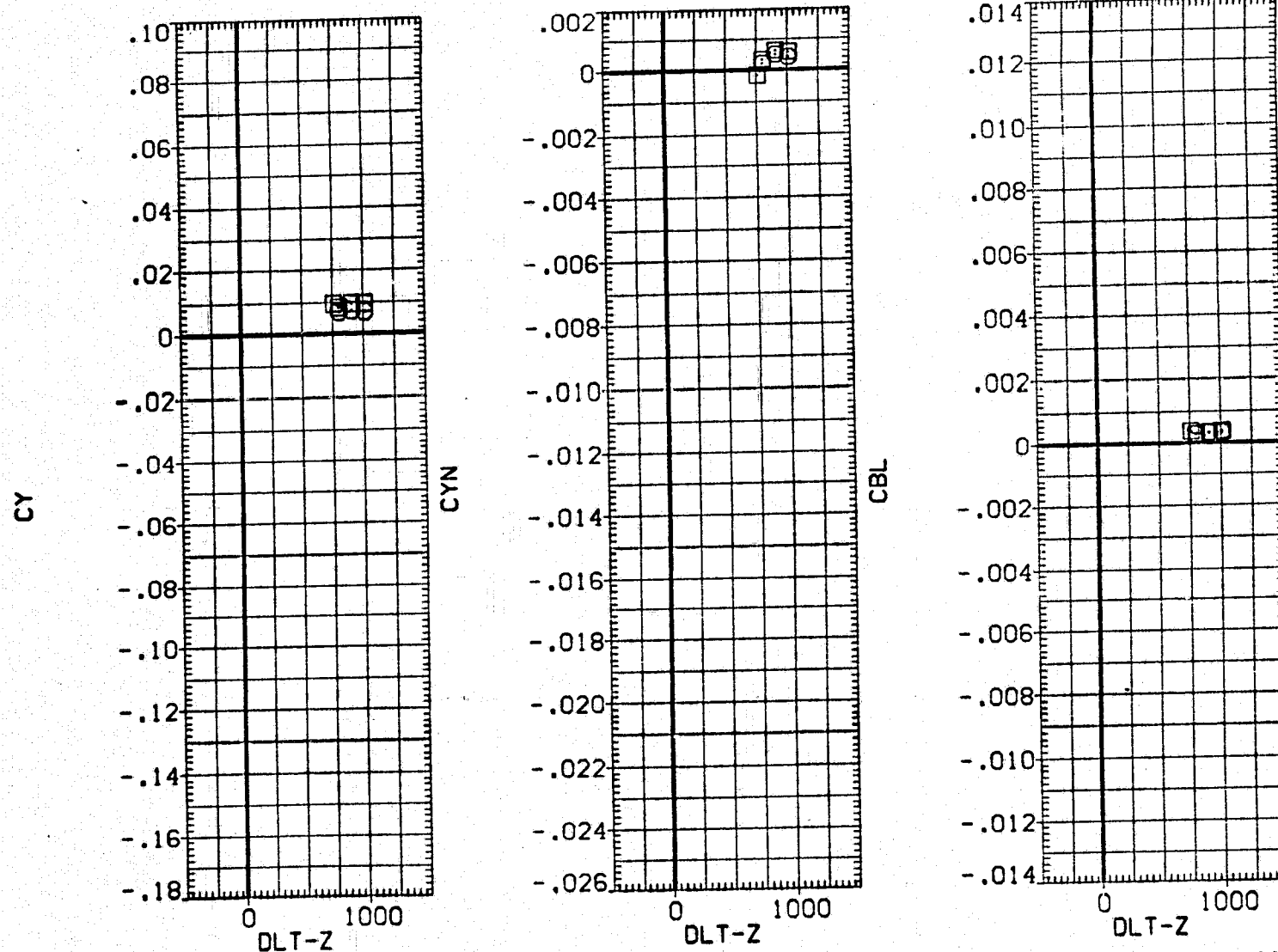


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO60)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
O	.610	BETA	.000	.000	5.930	-20.000
		DLTBT	3.000			
		AILRON	.000			
		GRID	14.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

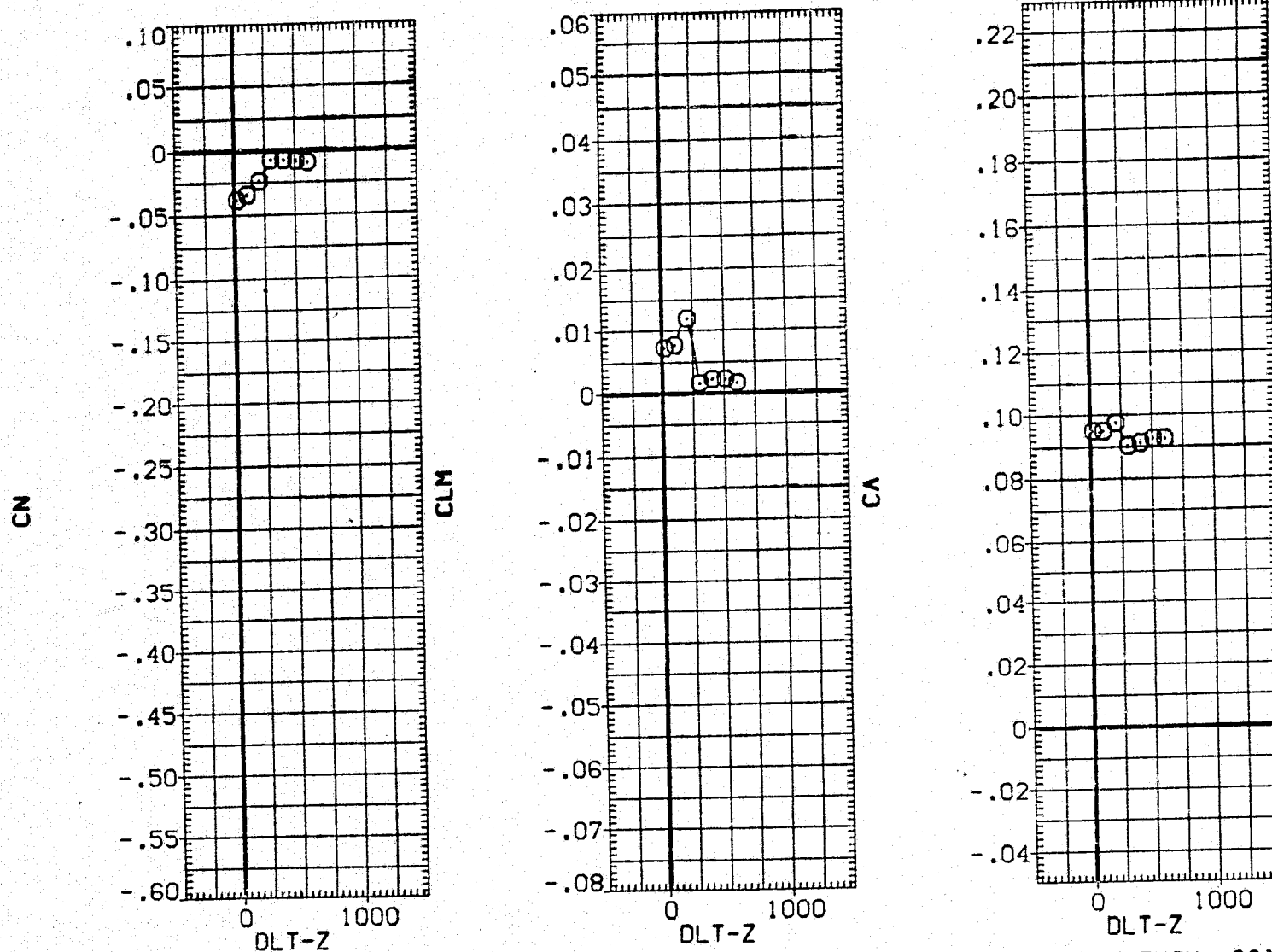


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO60)

SYMBOL		DLT-X		PARAMETRIC VALUES			
O		.610		DLT-Y	.000	ALPHA	.000
				BETA	3.000	DLTALF	.000
				DLTBTA	.000	MACH	5.930
				AIRLON	.000	ELEVON	-20.000
				GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

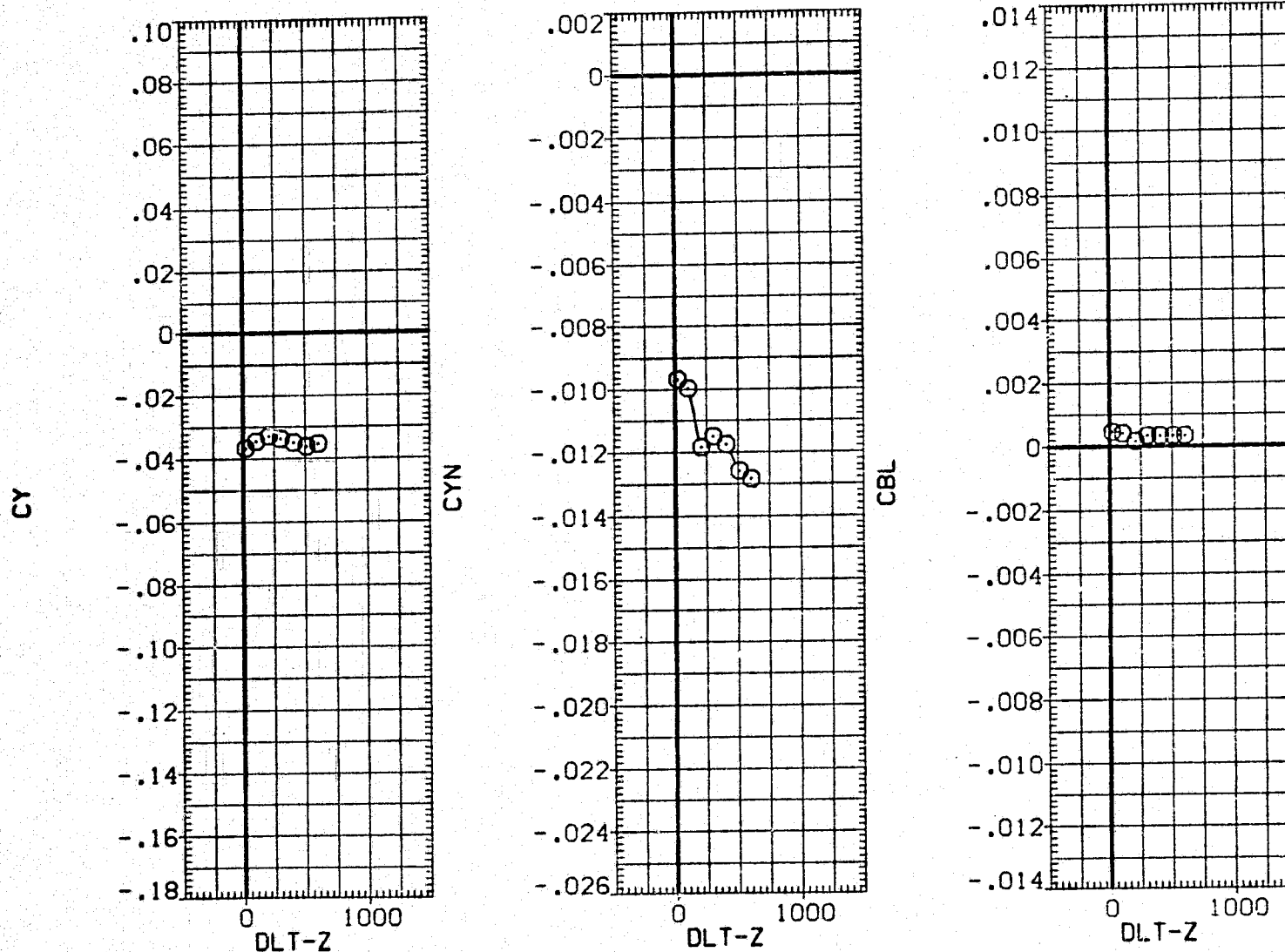


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO61)

SYMBOL		PARAMETRIC VALUES	
DLT-X	.581	DLT-Y	.000
DLT-Y	.000	ALPHA	.000
BETA	3.000	DLTALF	-10.000
DLTBTX	.000	MACH	5.930
DLTBTY	.000	ELEVON	-20.000
GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

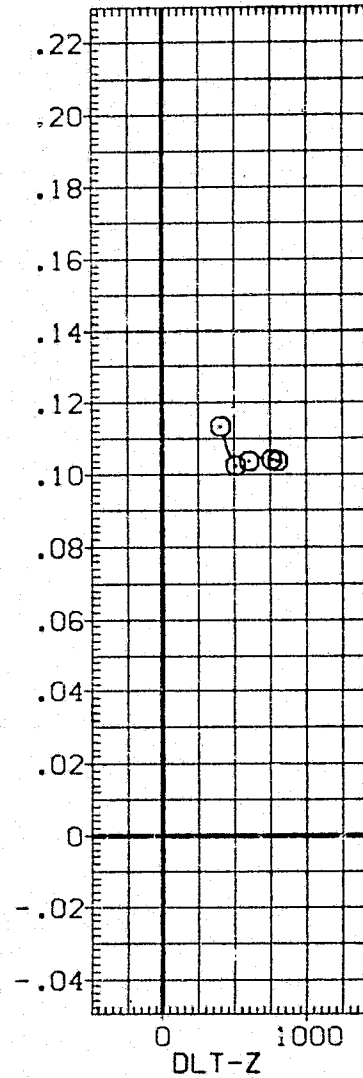
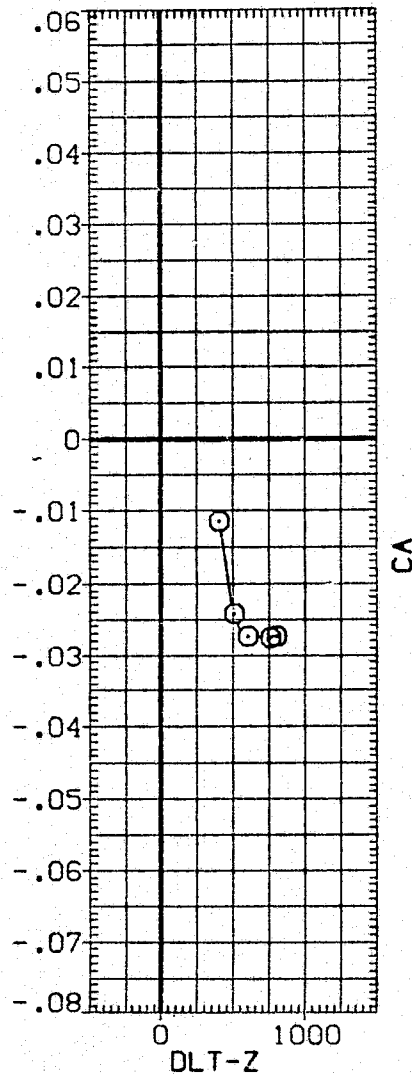
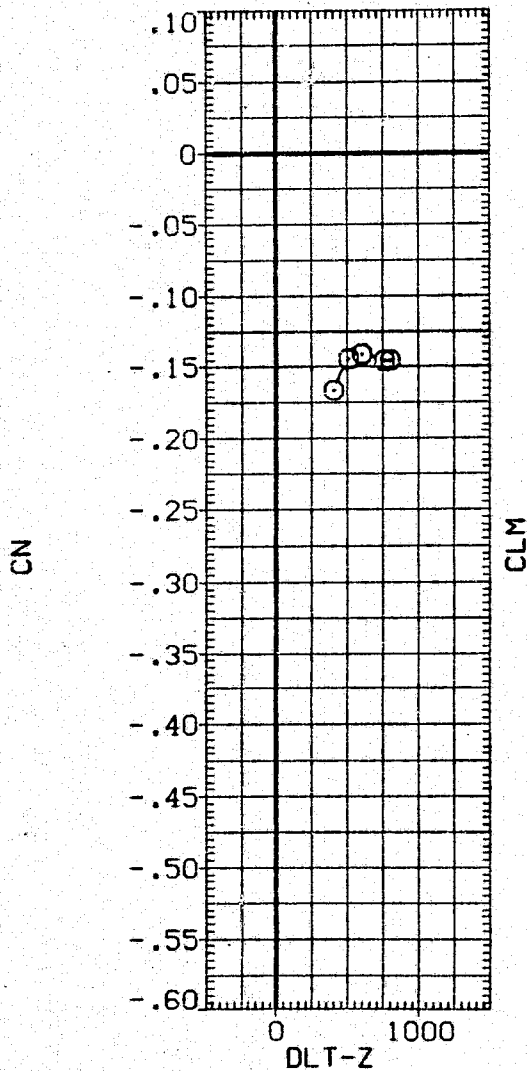


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO61)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	ALPHA	DLTALF	
O	.581	BETA	3.000	MACH	5.930
		DLTBTA	.000	ELEVON	-20.000
		AILRON	.000		
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1230.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

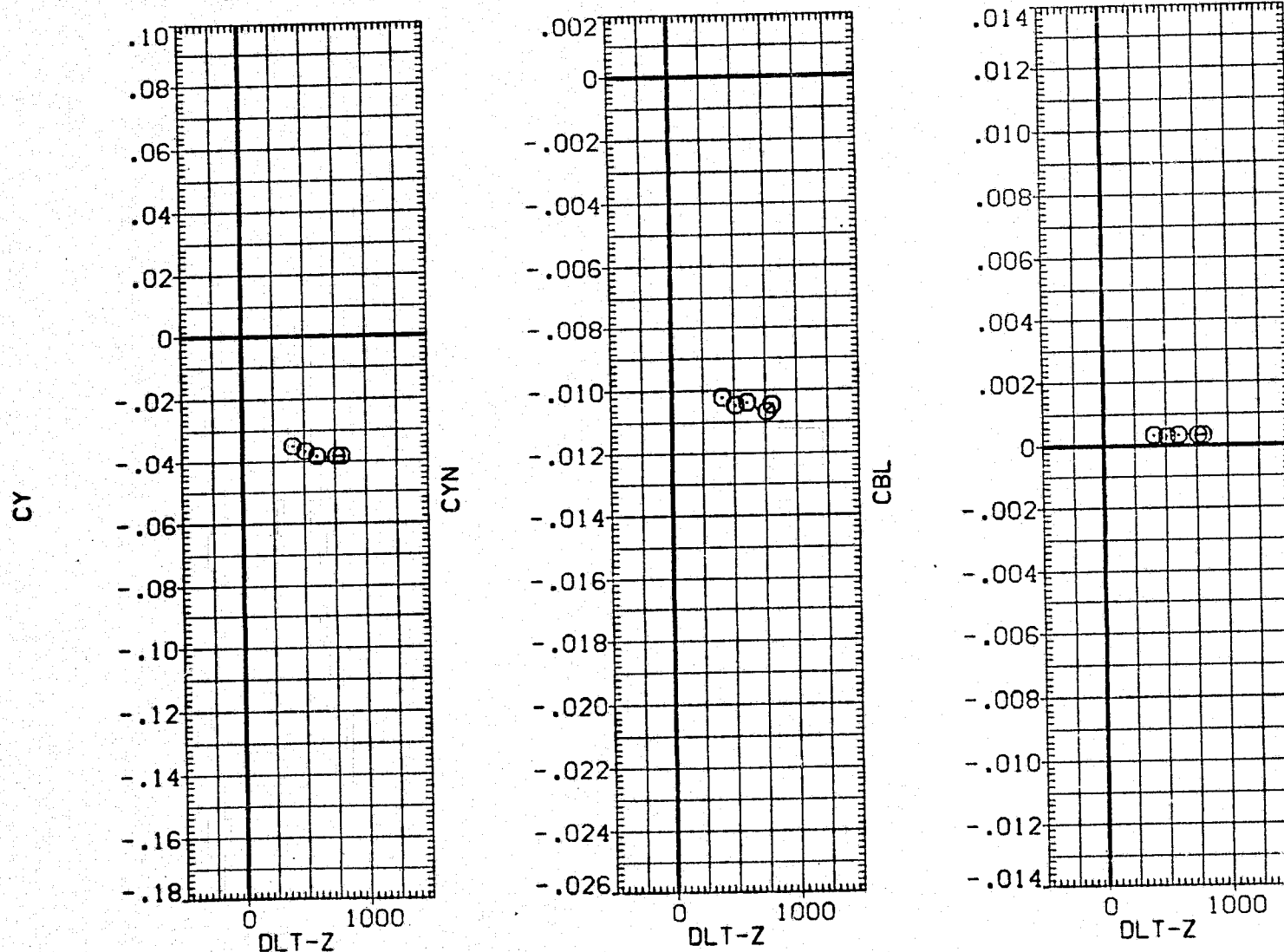


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO62)

SYMBOL O	DLT-X	PARAMETRIC VALUES			
	.507	DLT-Y	.000	ALPHA	.000
		BETA	3.000	DLTALF	-20.000
		DLTBTA	.000	MACH	5.930
		ATLRON	.000	ELEVON	-20.000
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

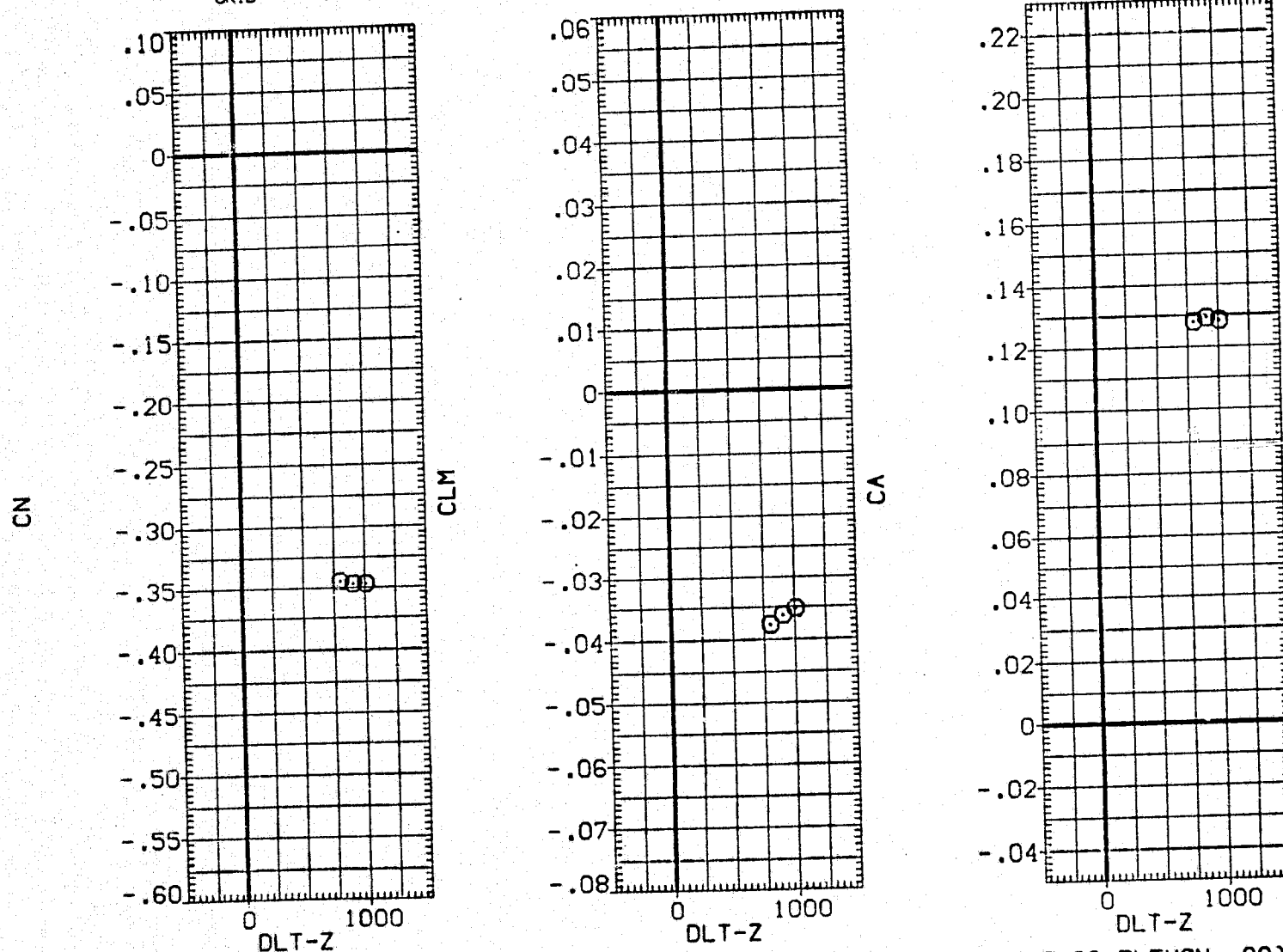


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO62)

SYMBOL	DLT-X	PARAMETRIC VALUES	
○	.507	DLT-Y .000	ALPHA .000
		BETA 3.000	DLTALF -20.000
		DLTBTA .000	MACH 5.930
		AILRON .000	ELEVON -20.000
		GRID 14.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

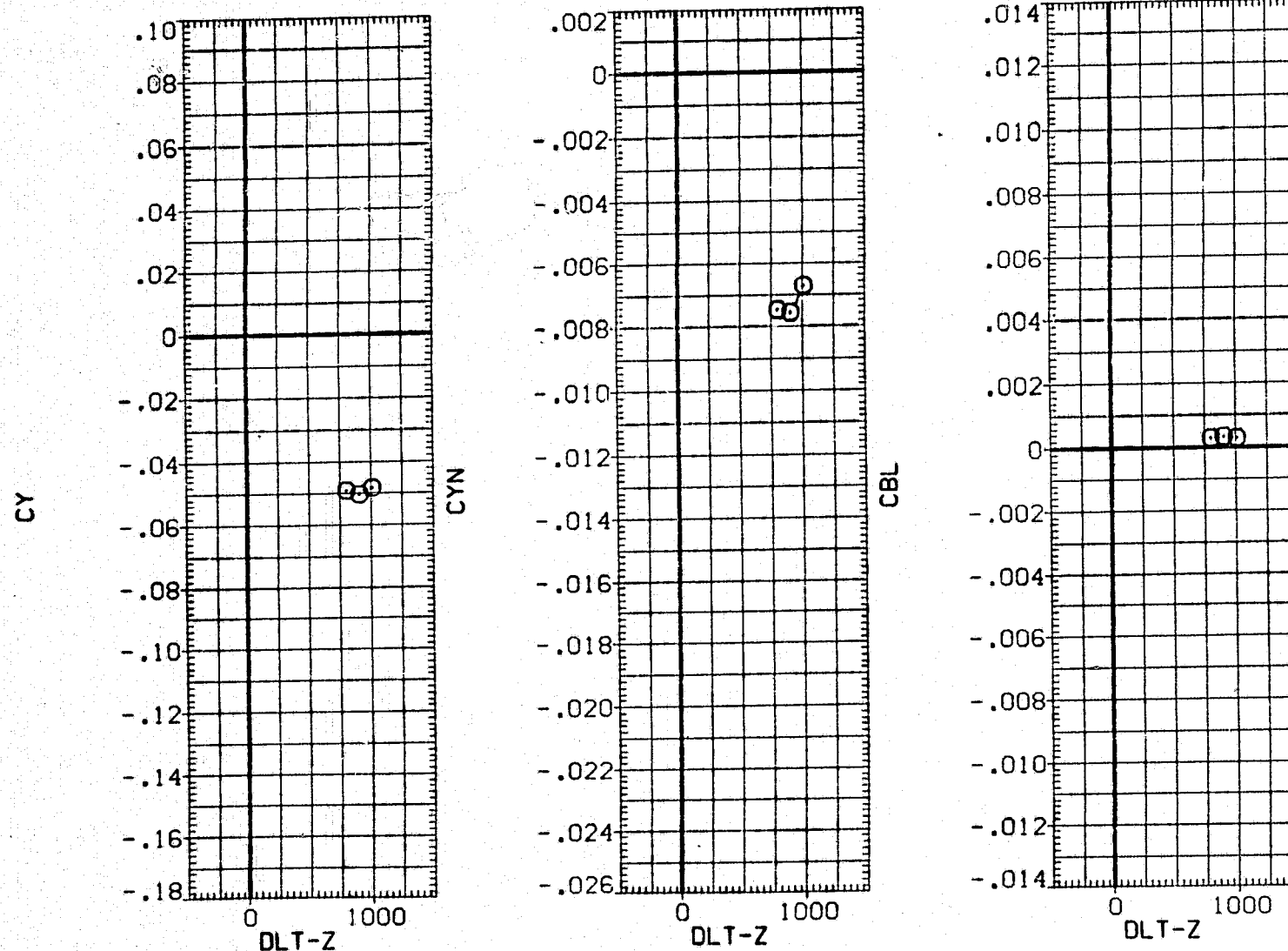


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO52)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.657	.000	5.000	.000
□	400.520	.000	5.930	.000
		.000	ELEVON	-20.000
		12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

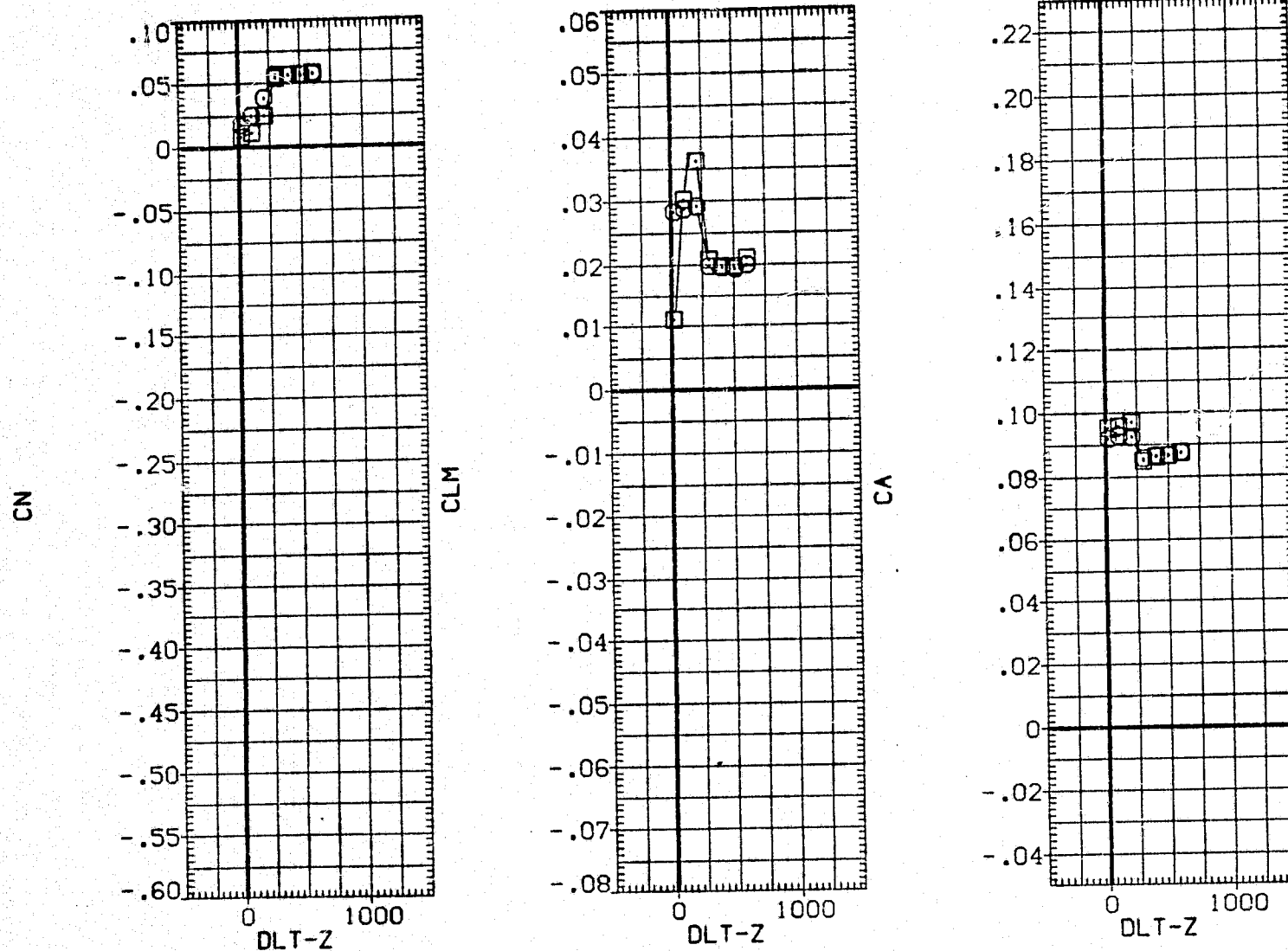


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO52)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.657	BETA	.000	DLTALF	.000
□	400.520	DLTBTA	.000	MACH	5.930
		AIRLON	.000	ELEVON	-20.000
		GRID	12.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

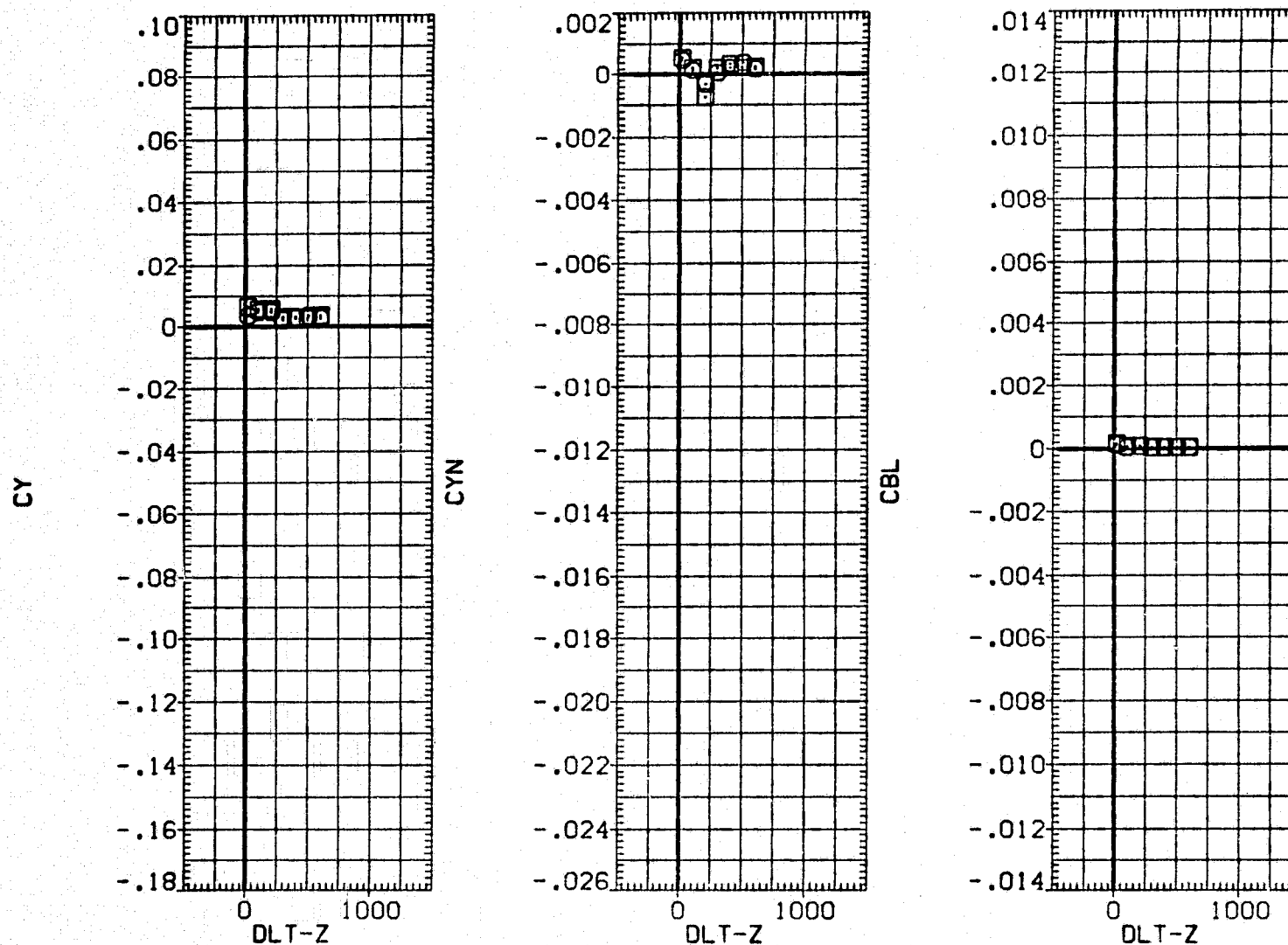


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO53)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.562	BETA	.000	5.000
□	400.470	DLTBT	.000	-10.000
		AILRON	.000	5.930
		GRID	12.000	-20.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

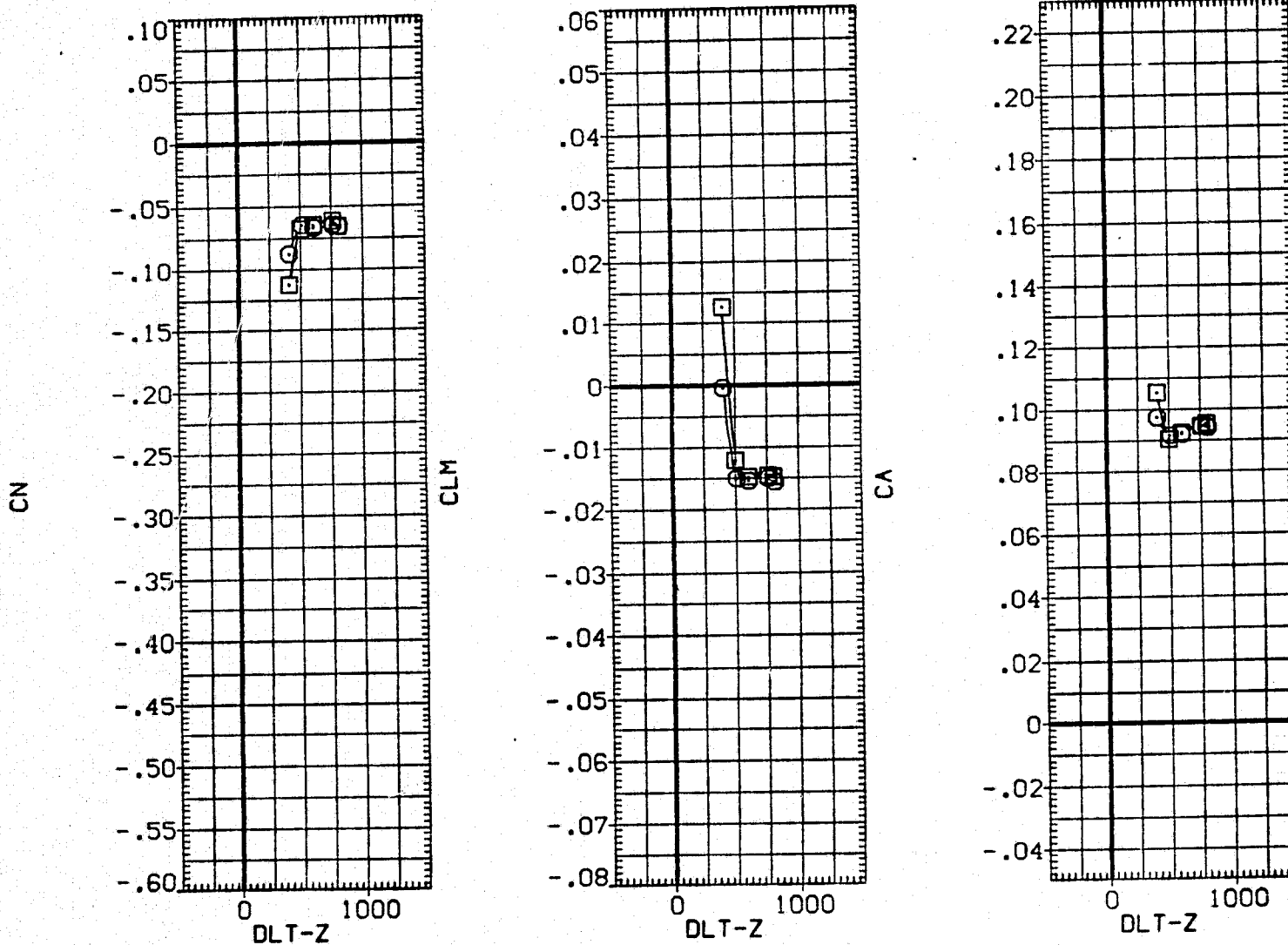


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO53)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.562	BETA	.000	ALPHA
□	400.470	DLTBT	.000	DLTALF
		AILRON	.000	MACH
		GRID	12.000	ELEVON
				-20.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

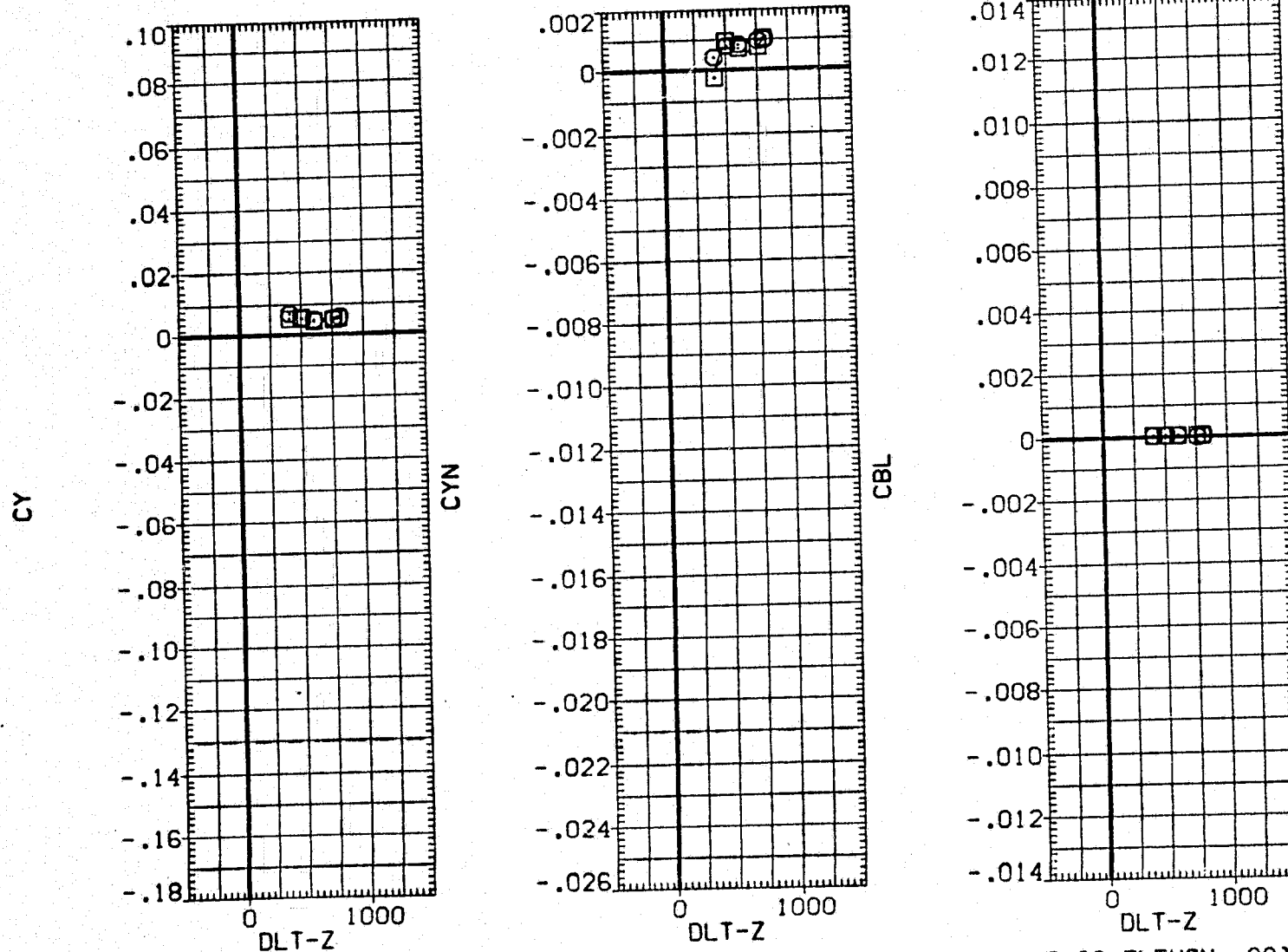


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO55)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.420	.000	ALPHA	5.000
□	400.500	.000	DLTALF	-20.000
		.000	MACH	5.930
		.000	ELEVON	-20.000
		GRID	12.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

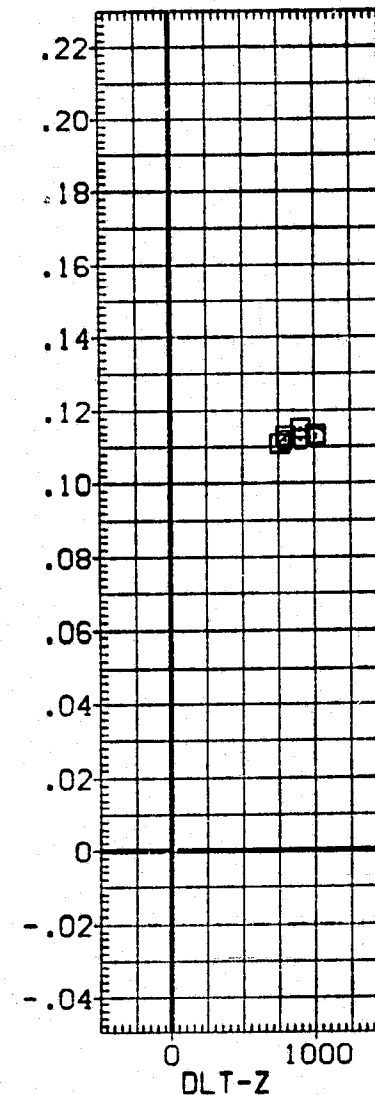
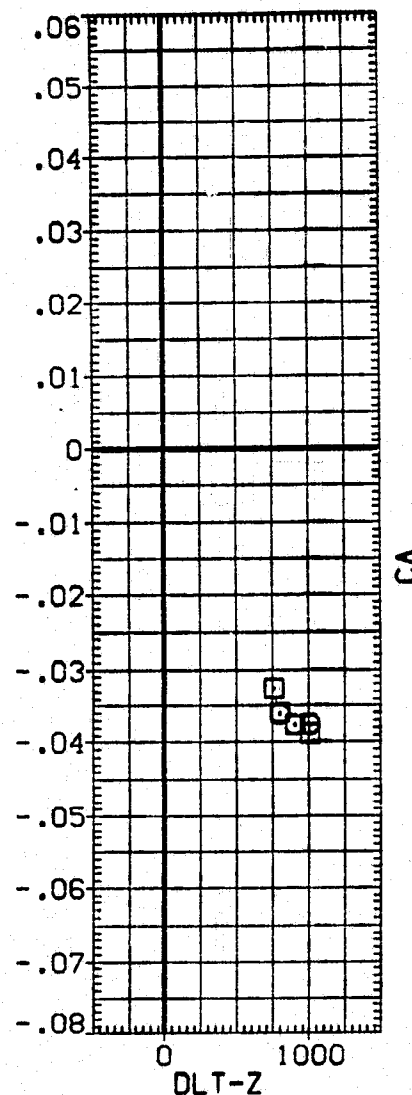
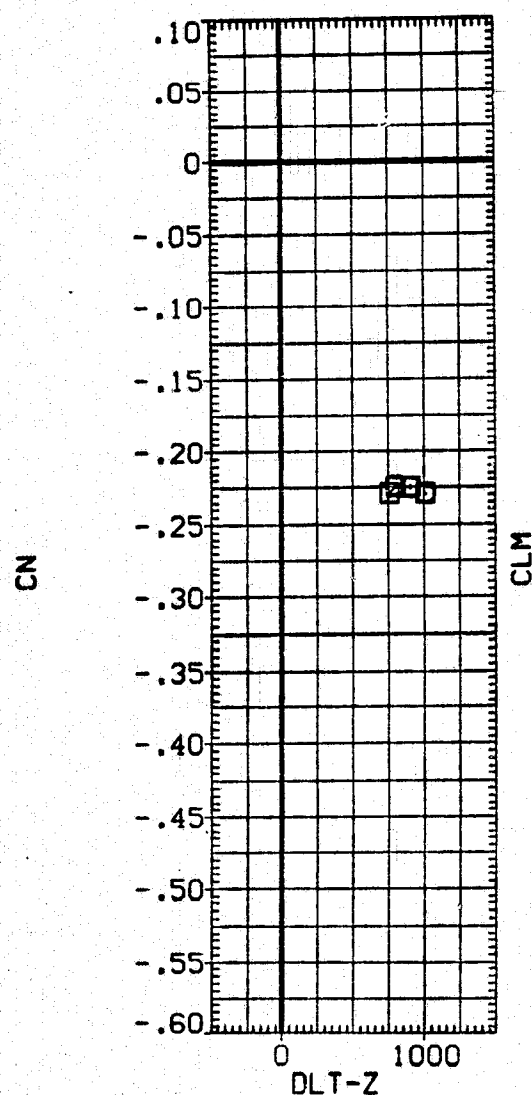


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO55)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.420	DLT-Y	.000	ALPHA	5.000
□	400.500	BETA	.000	DLTALF	-20.000
		DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	-20.000
		GRID	12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

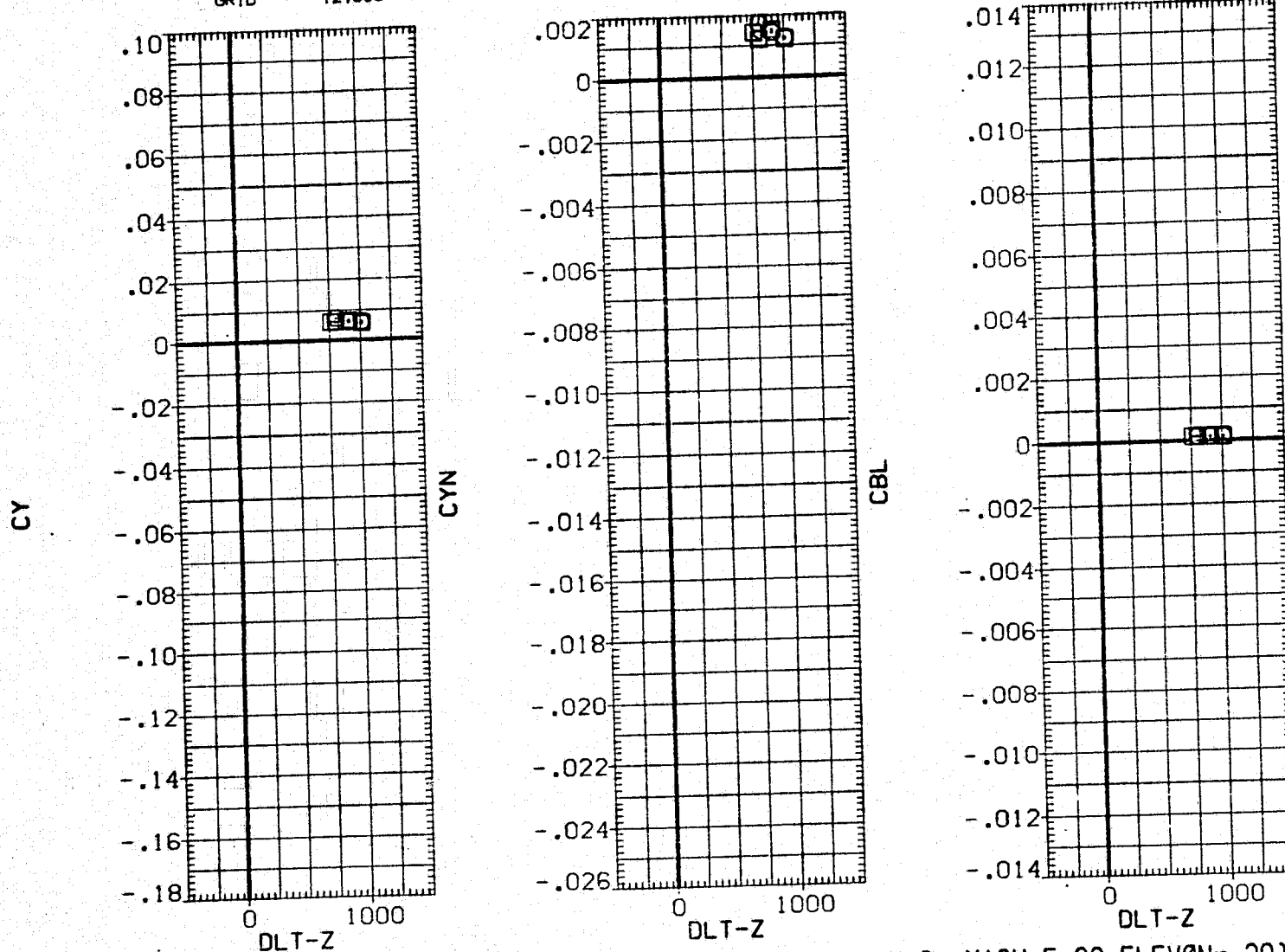


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO48)

SYMBOL		DLT-X		PARAMETRIC VALUES		
○		.570	DLT-Y	.000	ALPHA	-5.000
□		400.480	BETA	.000	DLTALF	.000
			DLTBTA	.000	MACH	5.930
			AILRON	.000	ELEVON	-20.000
			GRID	11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

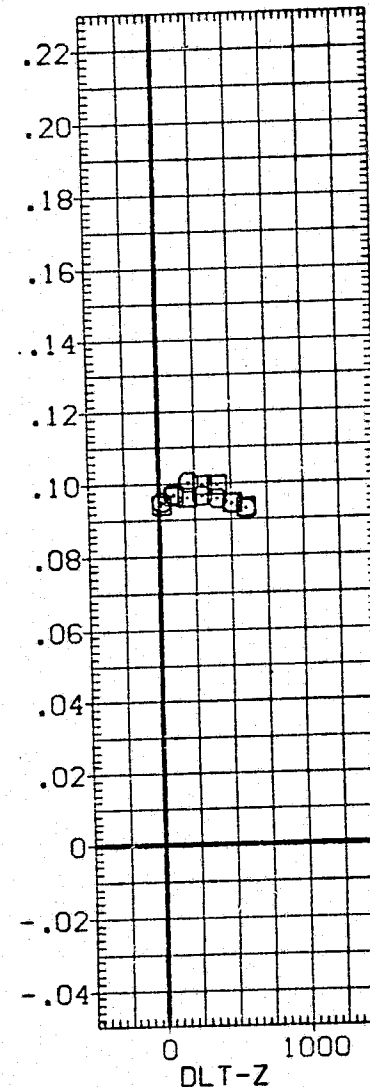
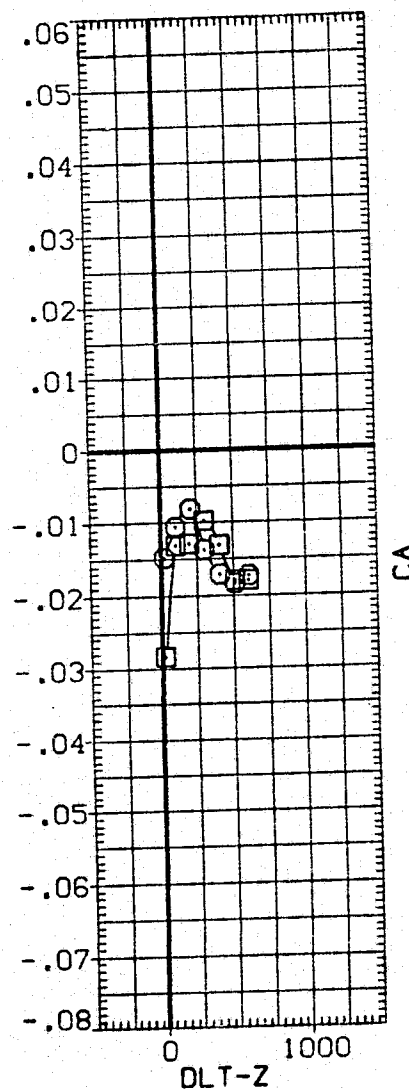
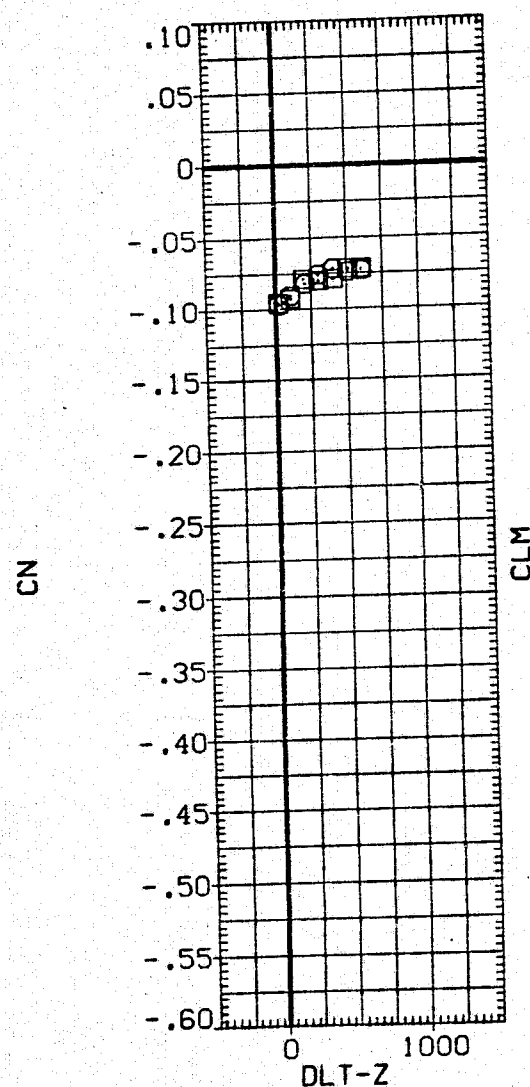


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO48)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	ELEVON
○	.570	.000		-5.000	
□	400.480	.000		.000	
		DLTBTA	.000	MACH	5.930
		AILRON	.000		-20.000
		GRID	11.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRF	1360.1000 IN. XT
YMRF	.0000 IN. YT
ZMRF	416.4000 IN. ZT
SCALE	.0100

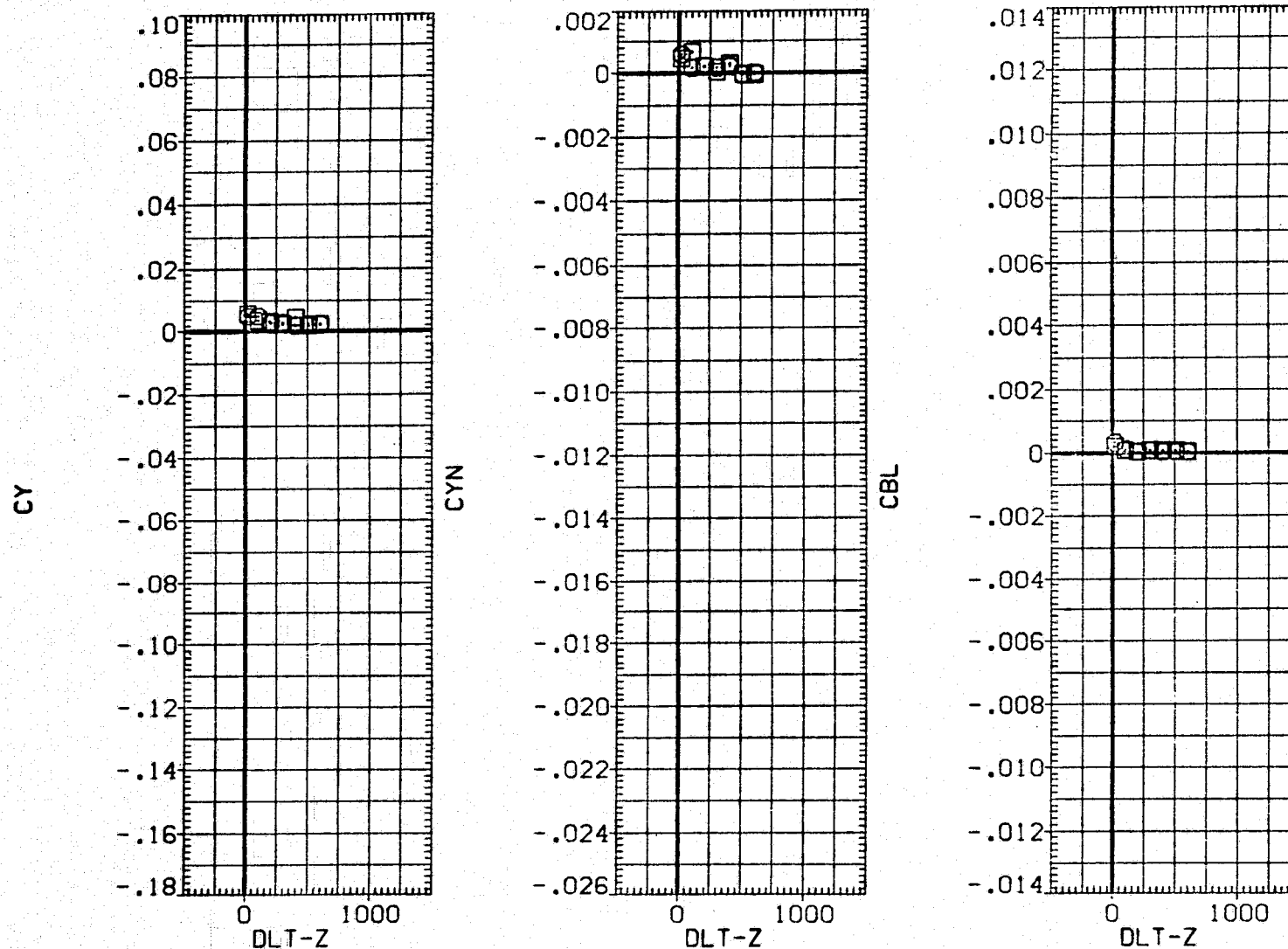


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO49)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	ALPHA	
○	.520	.000	-5.000	
□	400.490	.000	-10.000	
		BETA	DLTALF	
		.000	-10.000	
		DLTBTA	MACH	
		.000	5.930	
		ATLRON	ELEVON	
		.000	-20.000	
		GRID		
		11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

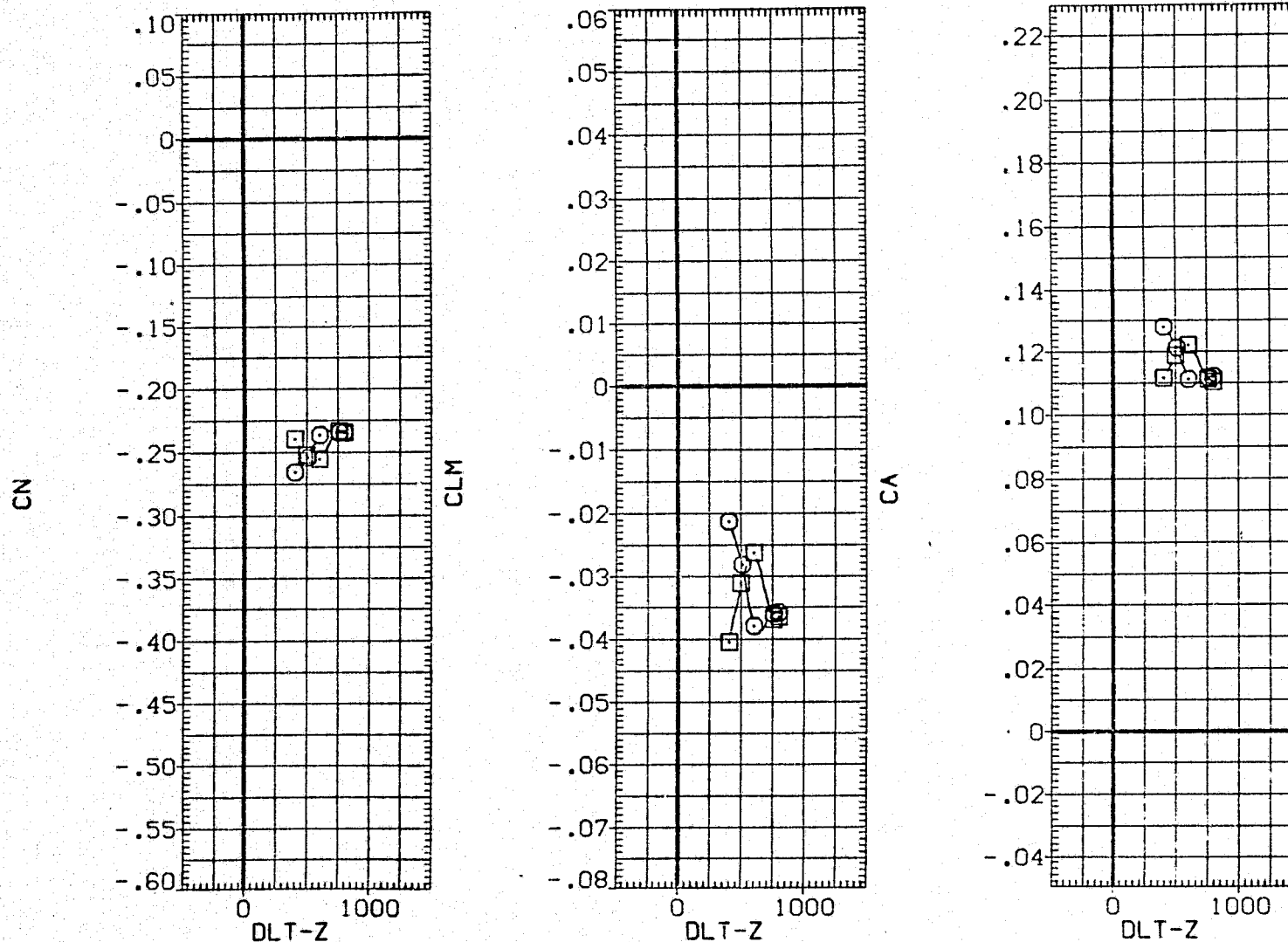


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO49)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLT-X	DLT-Y
○	.520	BETA	.000	-5.000	DLT-X	DLT-Y
□	400.490	DLTBT	.000	-10.000	DLT-X	DLT-Y
		AILRON	.000	5.930	DLT-X	DLT-Y
		GRID	11.000	-20.000	DLT-X	DLT-Y

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

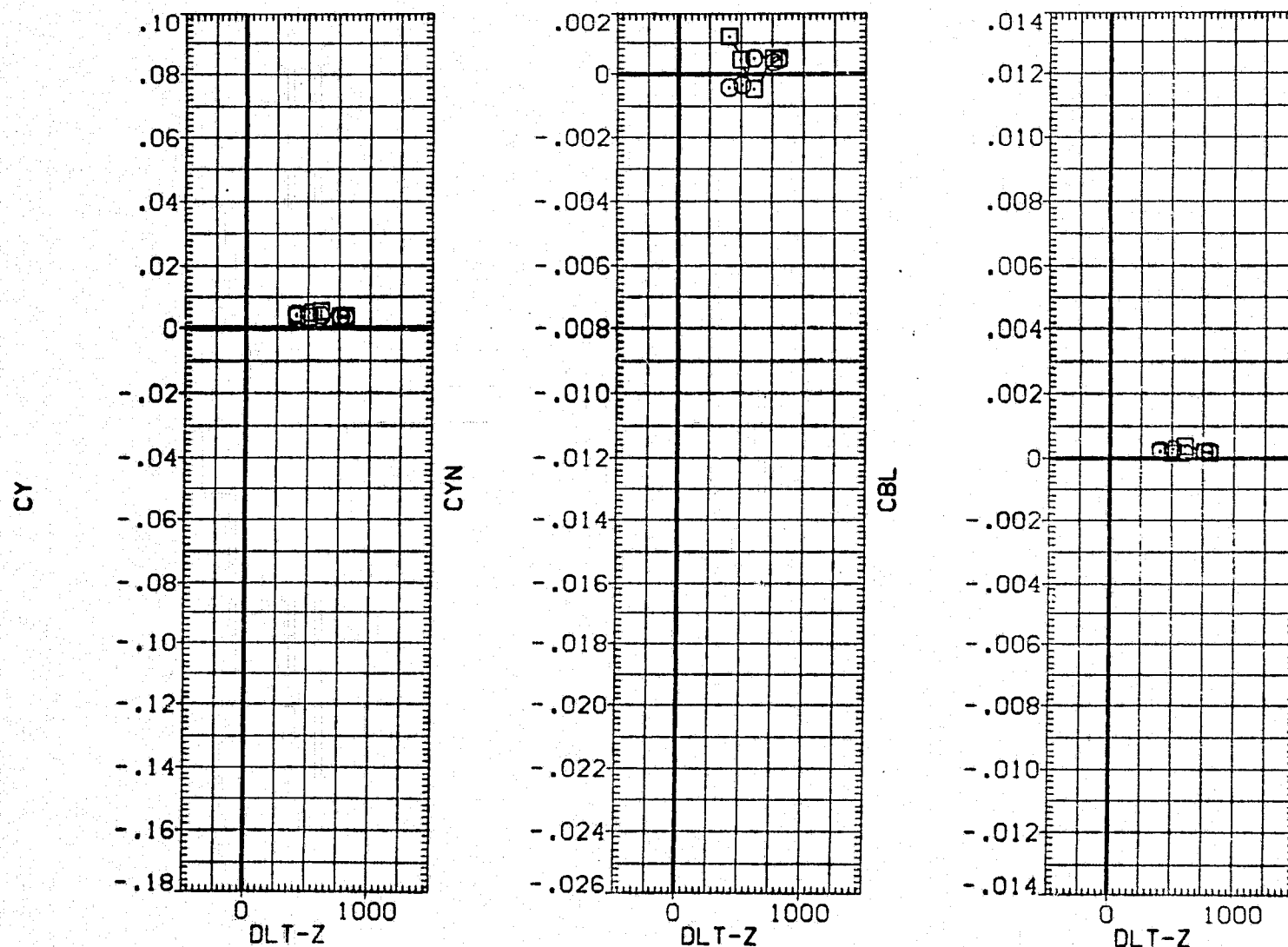


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO51)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.408	.000	ALPHA	-5.000
□	400.440	.000	DLTALF	-20.000
		.000	MACH	5.930
		.000	ELEVON	-20.000
		11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

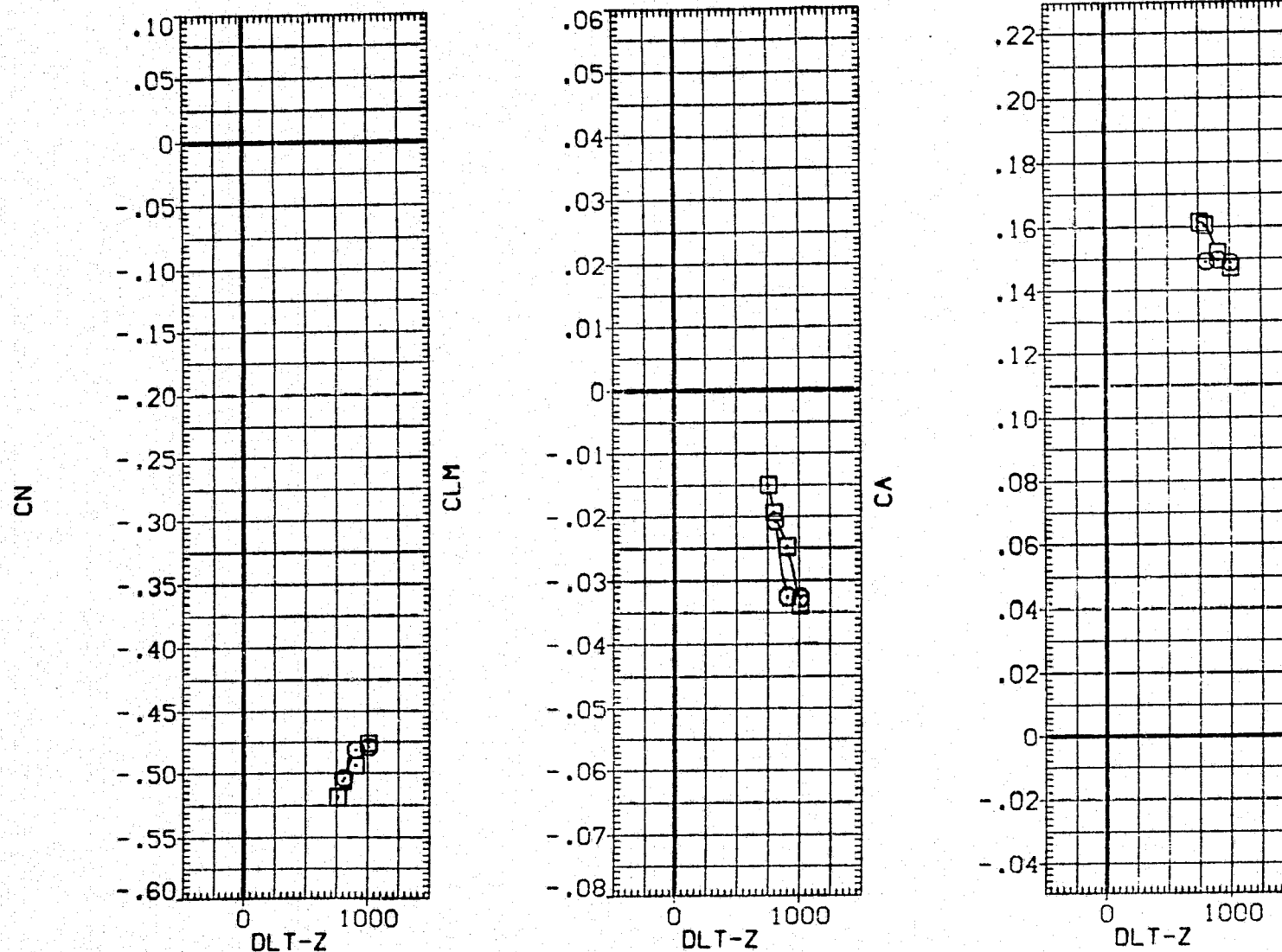


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO51)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.408	.000	-5.000	-20.000	5.930	-20.000
□	400.440	.000				
	DLTBT	.000				
	AILRON	.000				
	GRID	11.000				

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

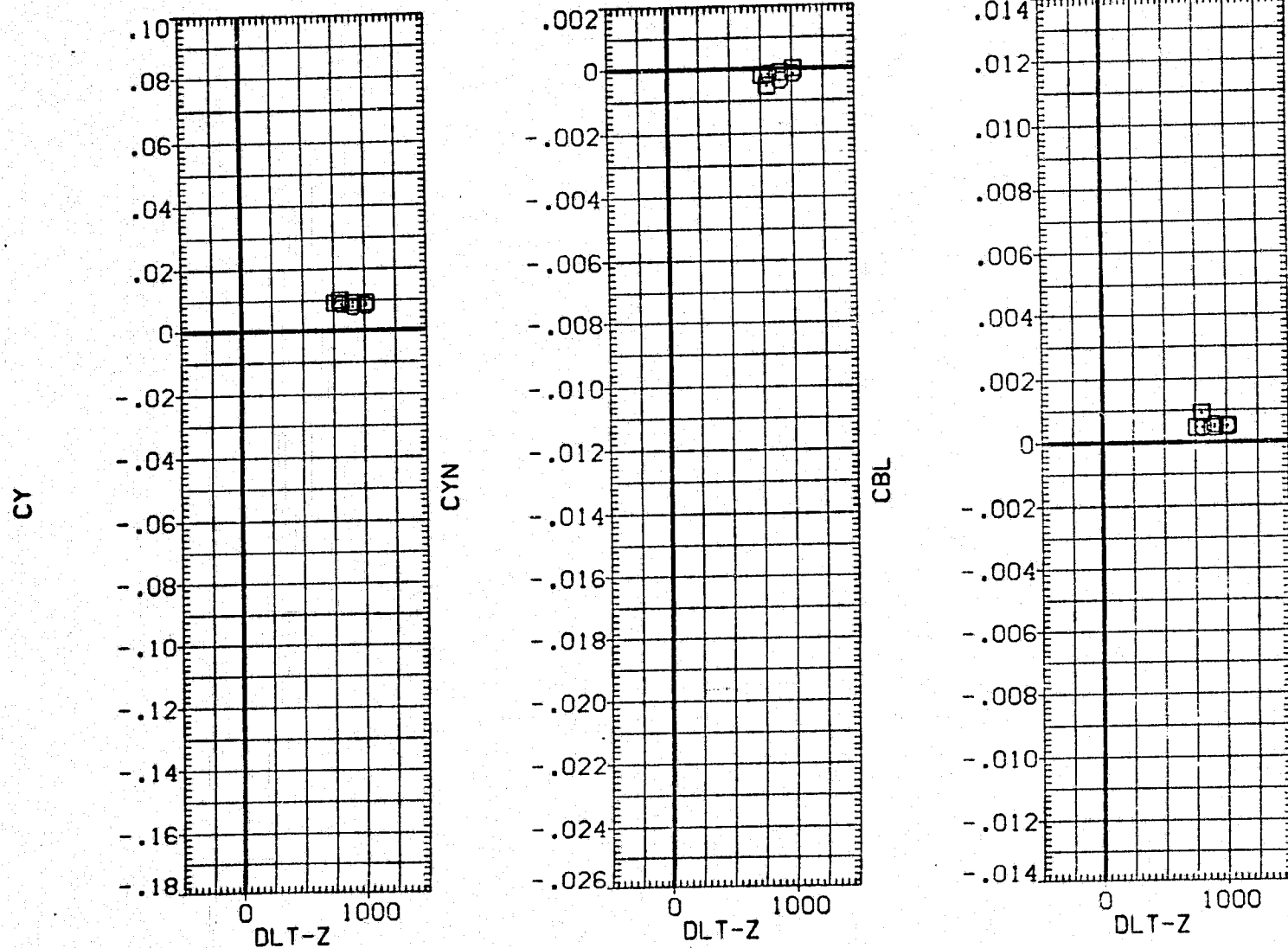


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO46)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	-10.000
○	.503	.000	BETA	.000	DLTALF
□	400.420	.000	DLTBT	.000	MACH
		.000	AILRON	.000	ELEVON
		.000	GRID	10.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

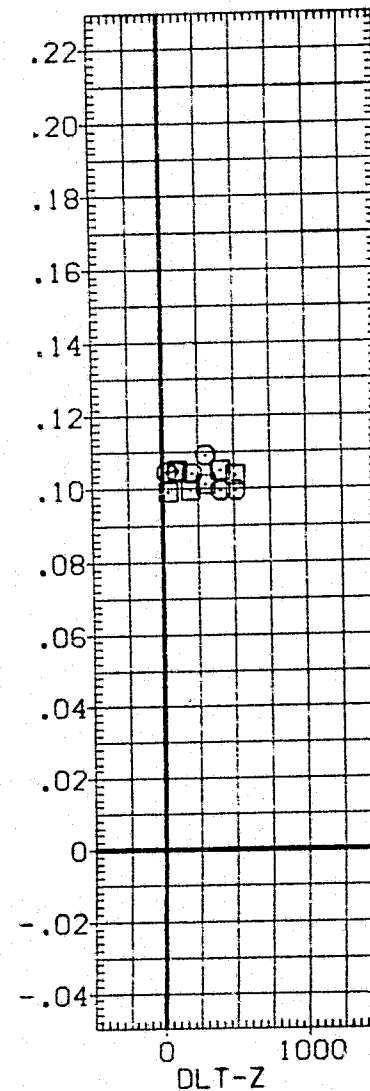
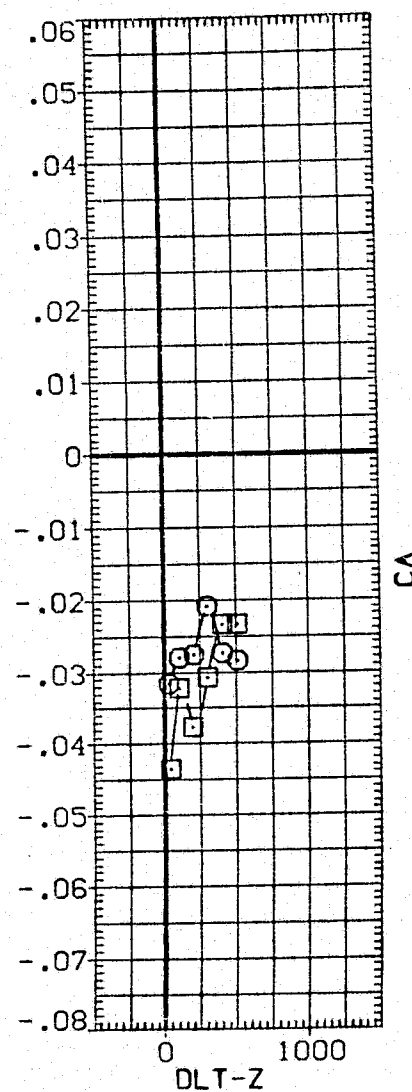
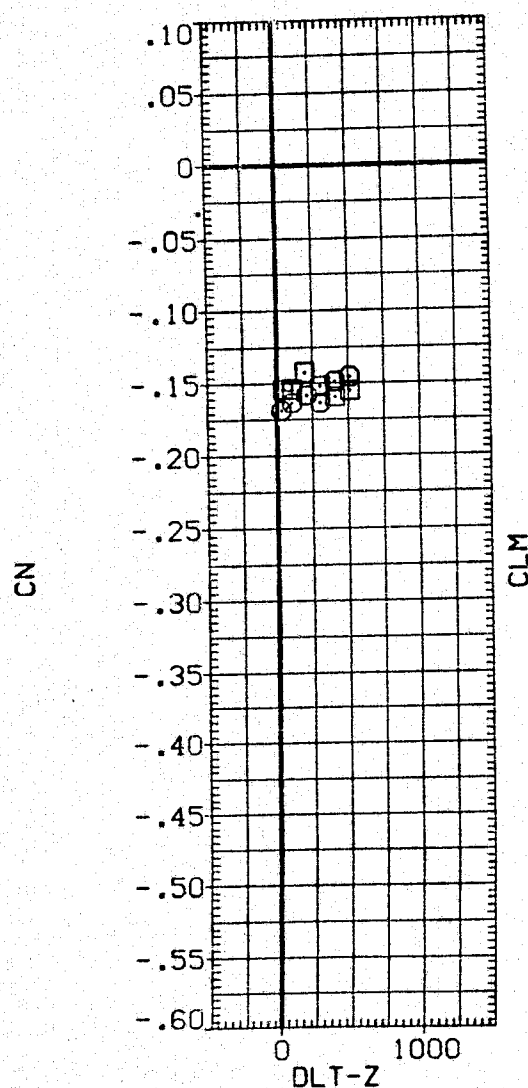


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC-VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO46)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.503	BETA	.000	ALPHA
□	400.420	DLTBTBTA	.000	DLTALF
		AILRON	.000	MACH
		GRID	10.000	ELEVON
				-10.000
				.000
				5.930
				-20.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

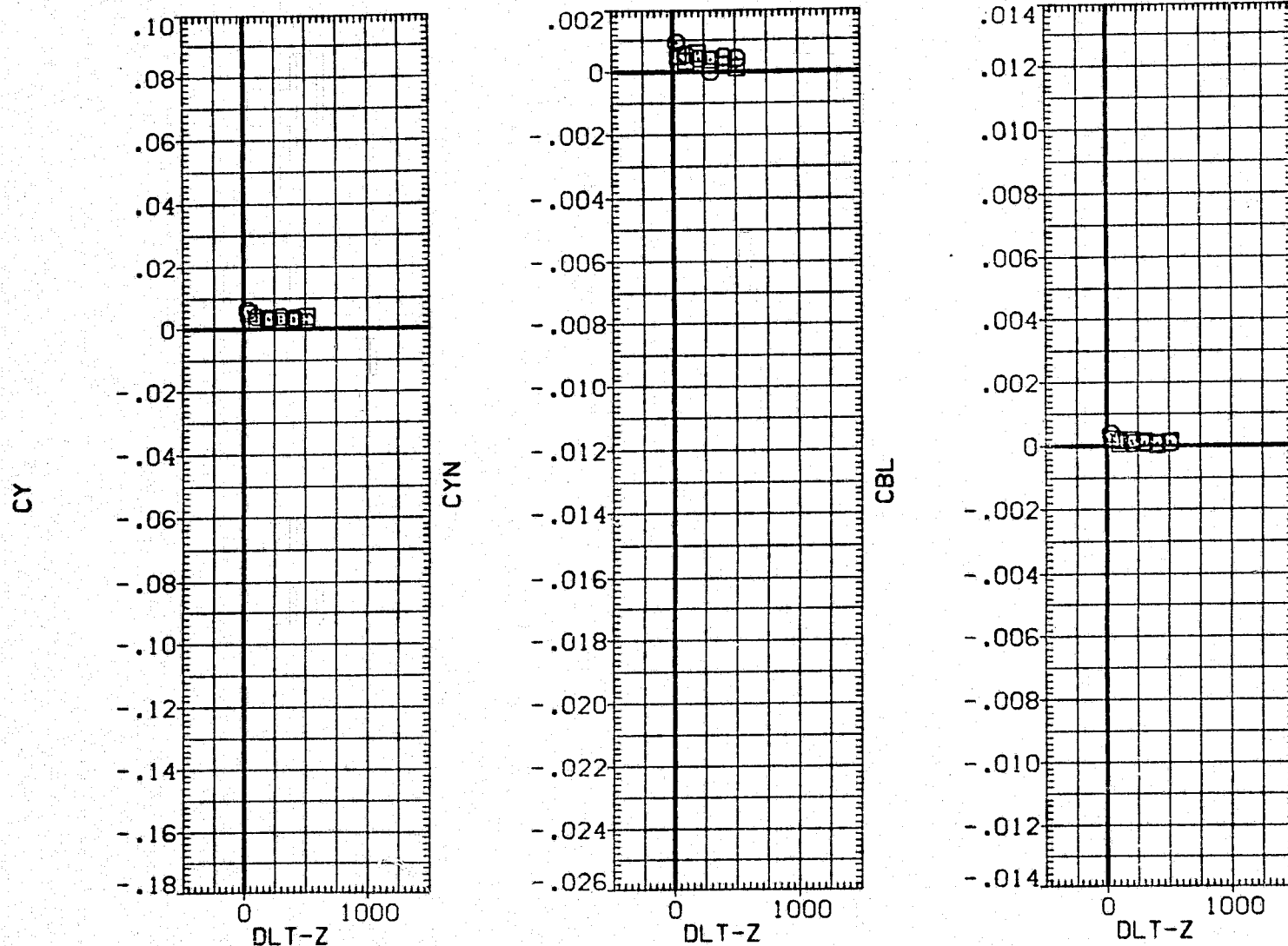


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO47)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.577	.000	ALPHA	-10.000
□	400.480	.000	DLTALF	-10.000
		.000	MACH	5.930
		.000	ELEVON	-20.000
		10.000		
		GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

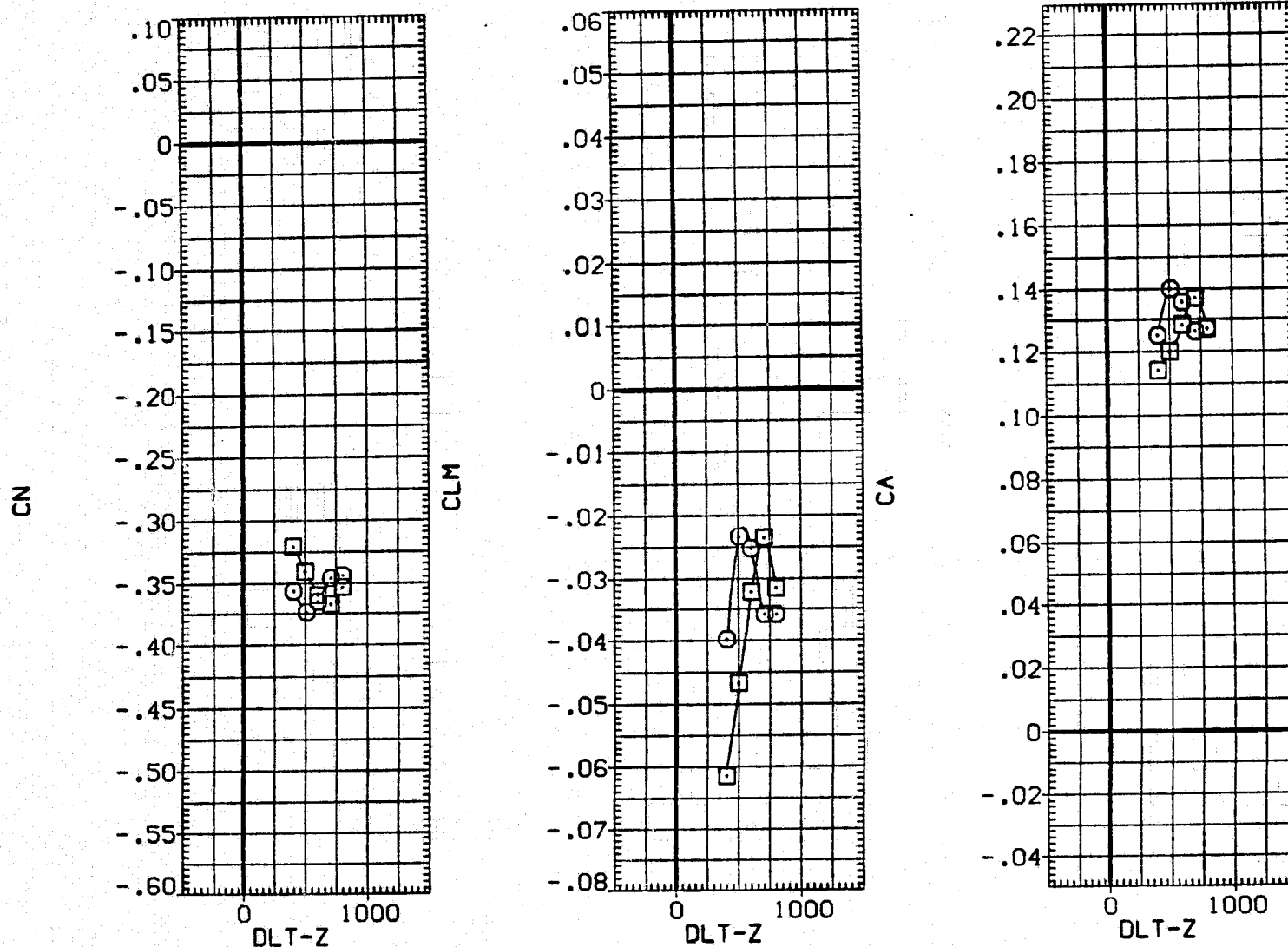


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO47)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	ELEVON
○	.577	.000	-10.000	-10.000	5.930
□	400.480	.000	-10.000	-10.000	-20.000
	DLTSTA	.000			
	AILRON	.000			
	GRID	10.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

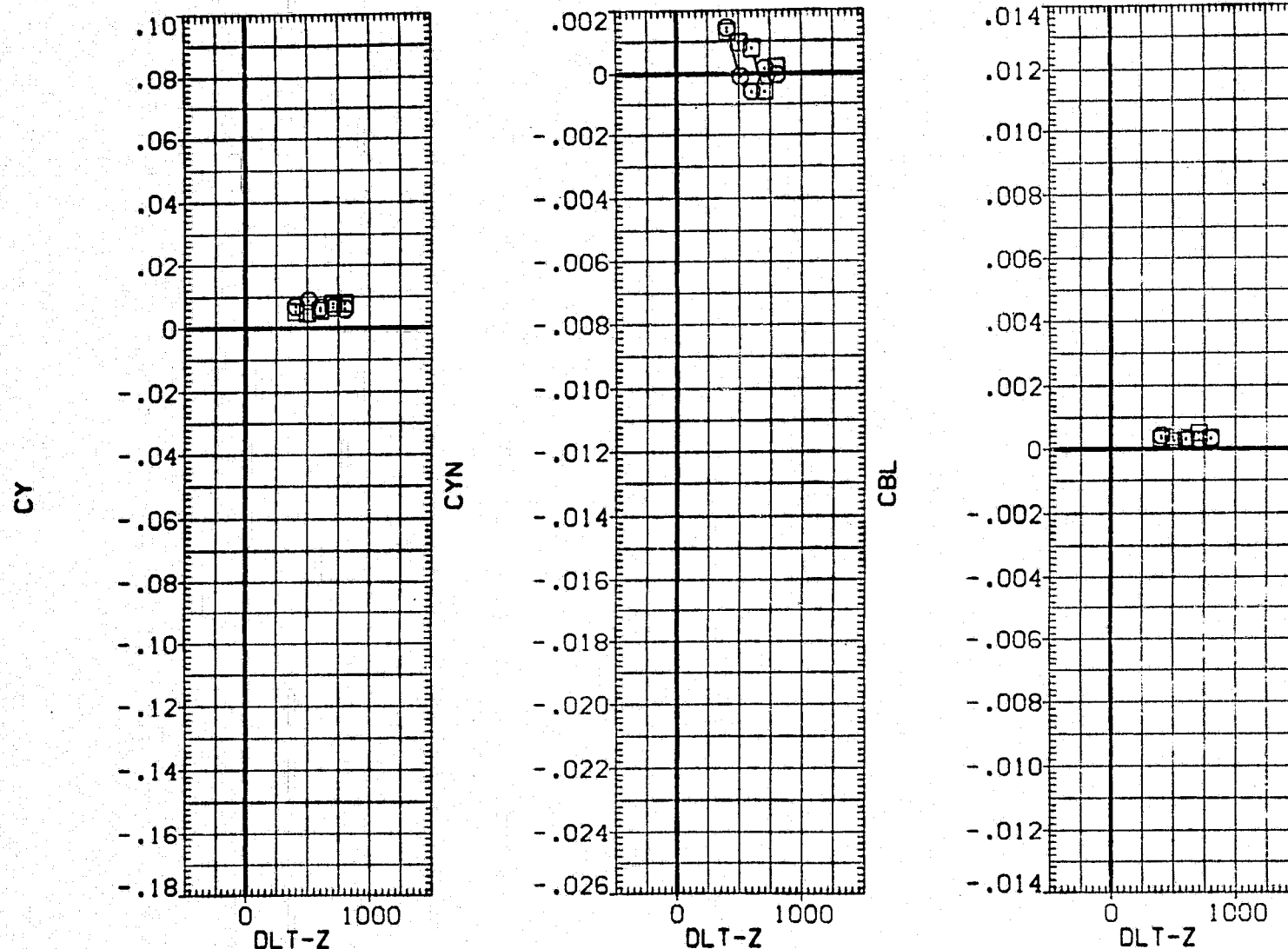


FIGURE 25 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO66)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.391	.000	.000	.000	5.930	-40.000
□	400.490	.000	.000	.000		
		DLTBTA				
		AILRON				
		GRID	13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

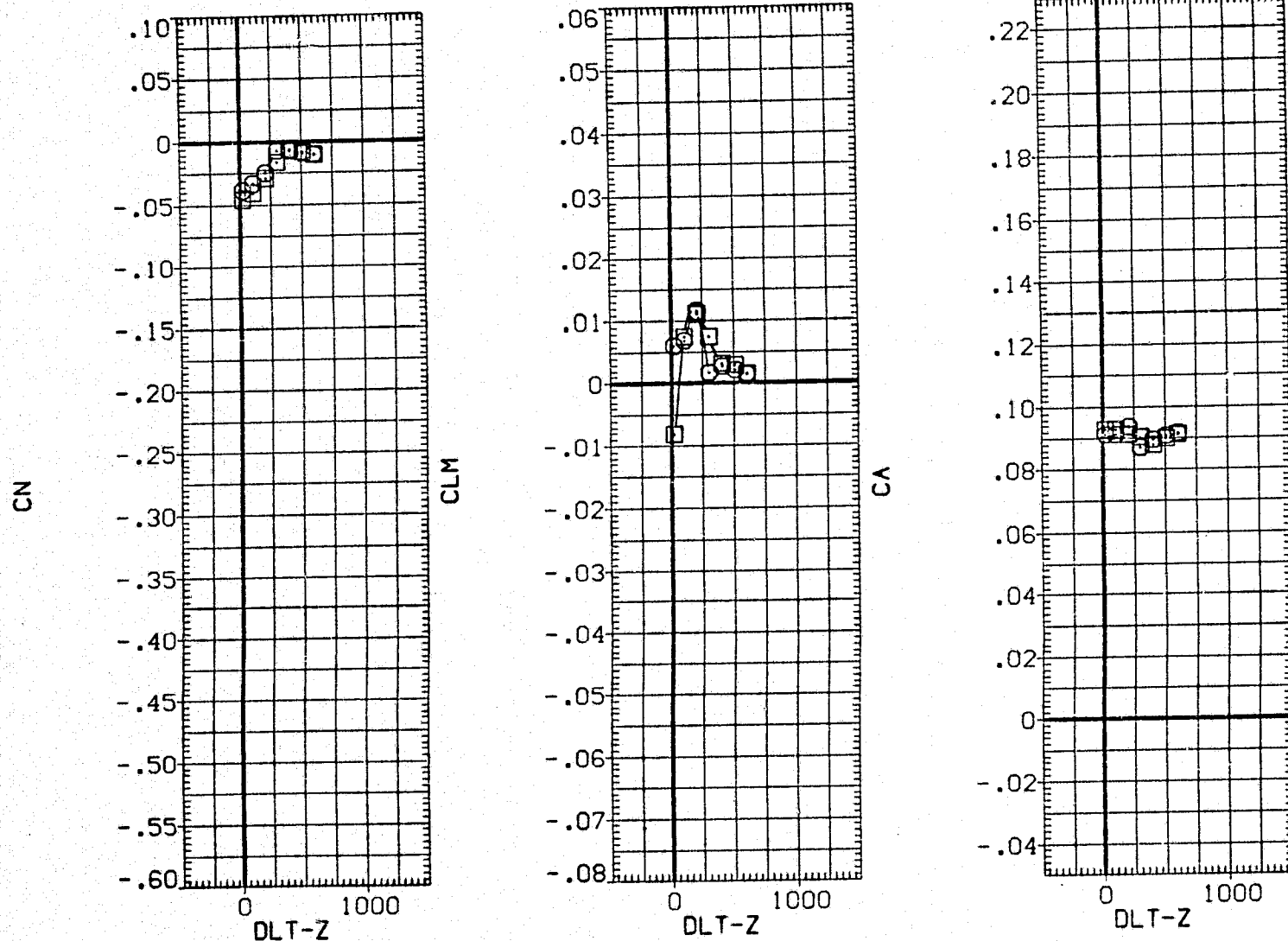


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO66)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLTALF	MACH
○	.391	.000	.000	.000	.000	5.930
□	400.490	.000	.000	.000	.000	-40.000
		DLTBT	AILRON	GRID	13.000	

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

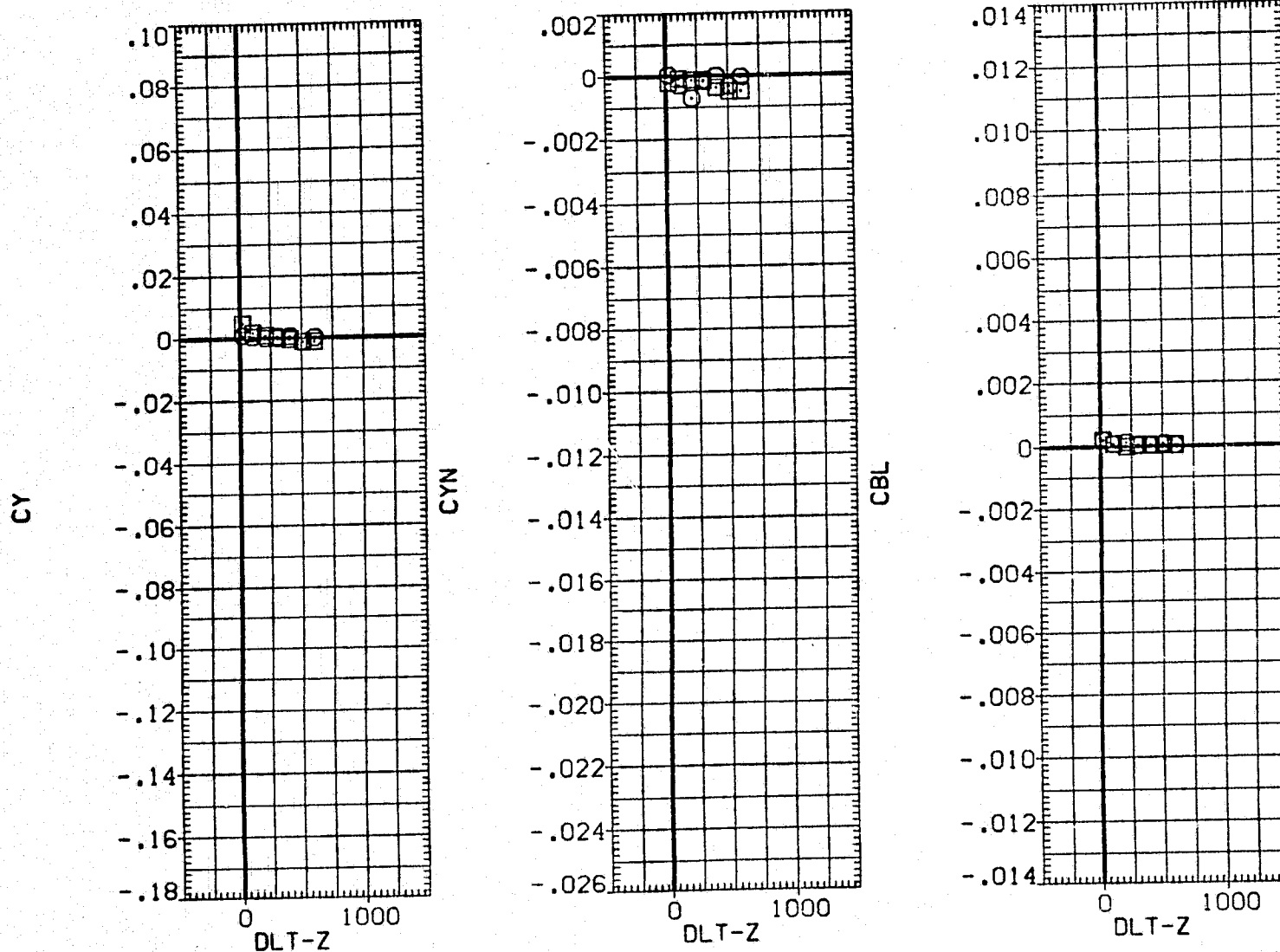


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO67)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.550	BETA	.000	-10.000	5.930	-40.000
□	400.450	DLTBTA	.000			
		AILRON	.000			
		GRID	13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMPP	1360.1000	IN. XT
YMPP	.0000	IN. YT
ZMPP	416.4000	IN. ZT
SCALE	.0100	

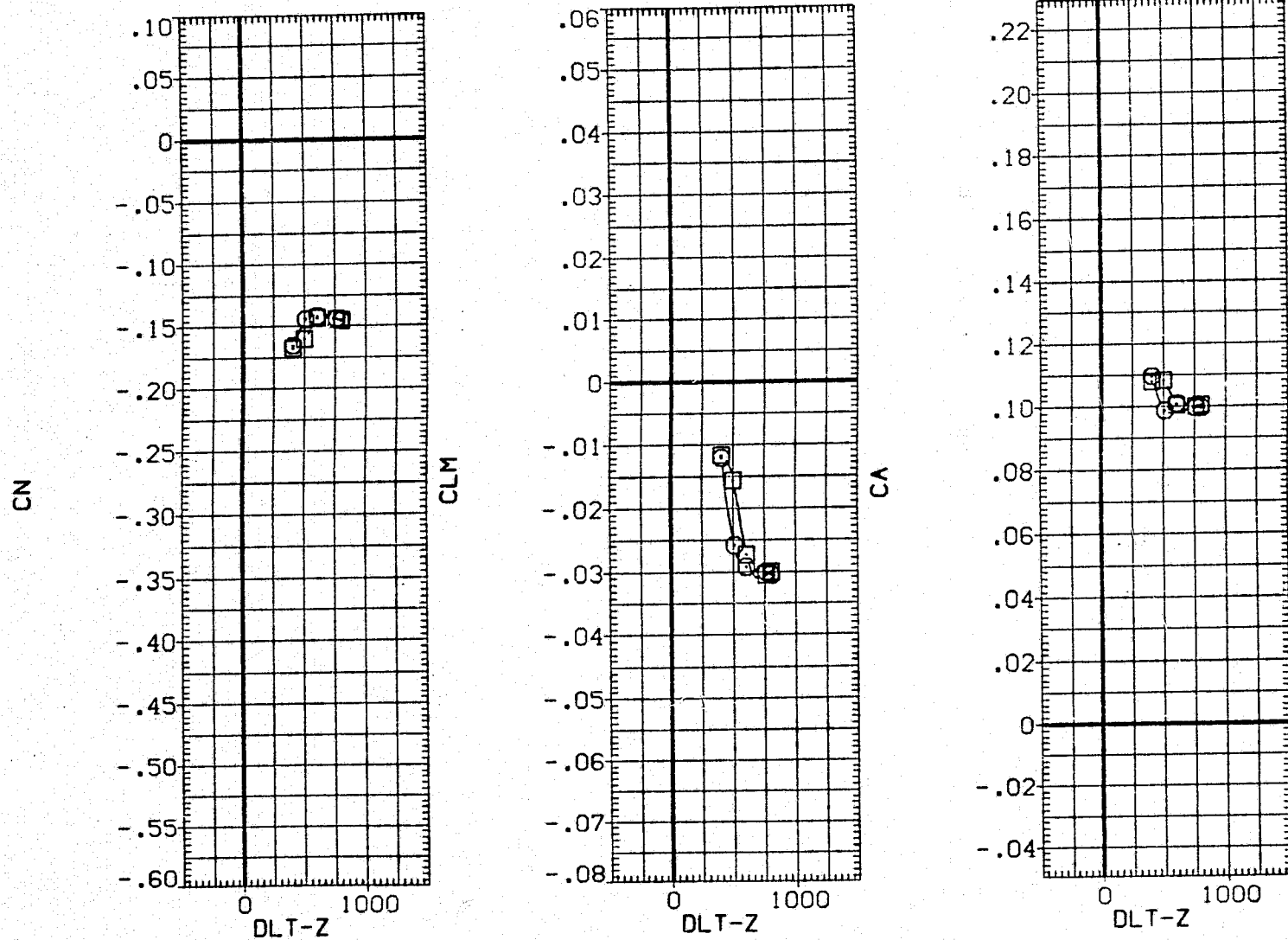


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO67)

SYMBOL		PARAMETRIC VALUES	
<input type="radio"/>	DLT-X .550	DLT-Y .000	ALPHA .000
<input type="checkbox"/>	400.450	BETA .000	DLTALF -10.000
		DLTBTA .000	MACH 5.930
		AIRLON .000	ELEVON -40.000
		GRID 13.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

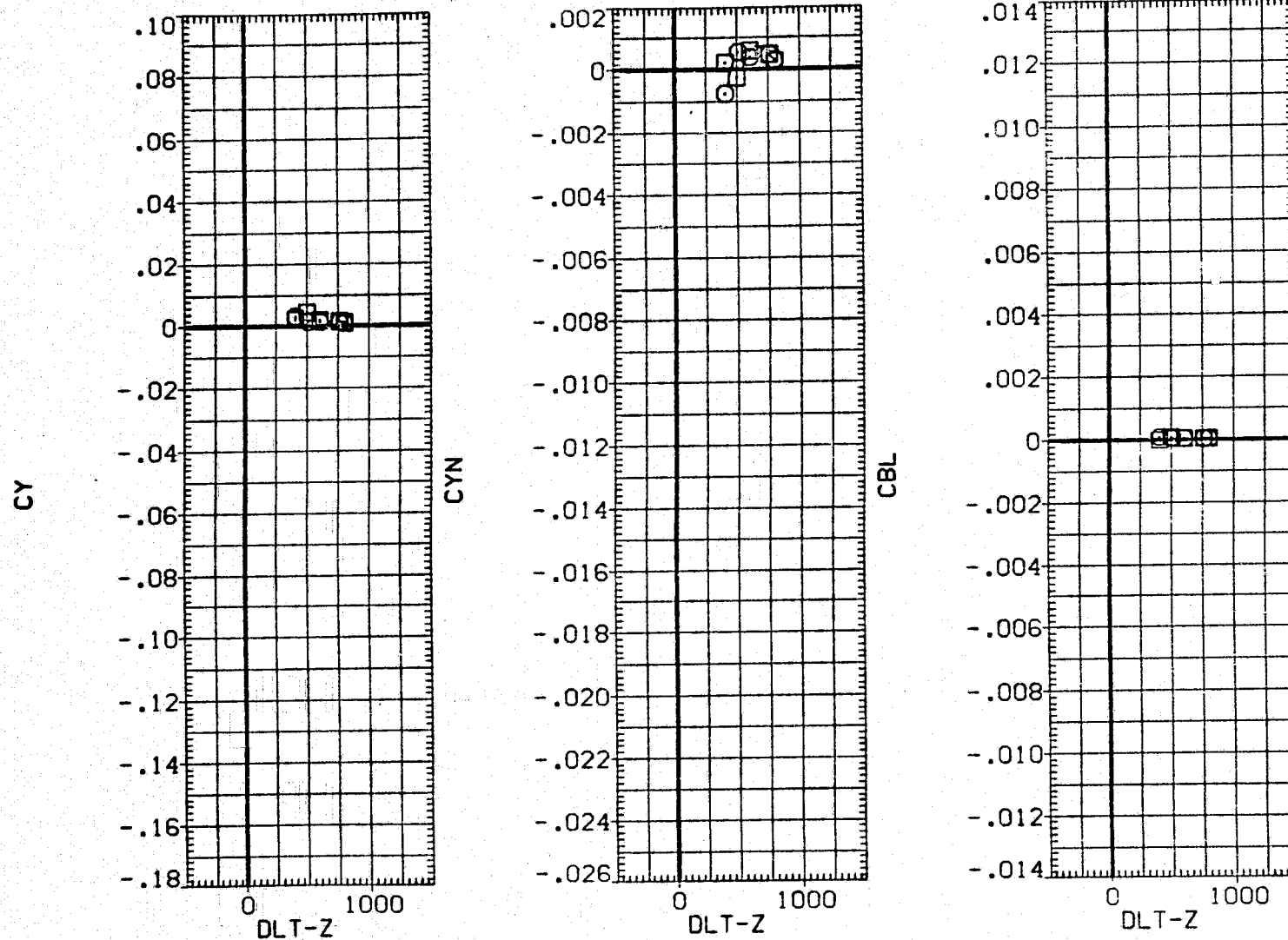


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS ($\Delta Y=0$, MACH=5.93, ELEVON=-40)



C

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO69)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLTALF	ALPHA
○	.440	BETA	.000	.000	-20.000	.000
□	400.330	DLTBTA	.000	MACH	5.930	
		AILRON	.000	ELEVON	-40.000	
		GRID	13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

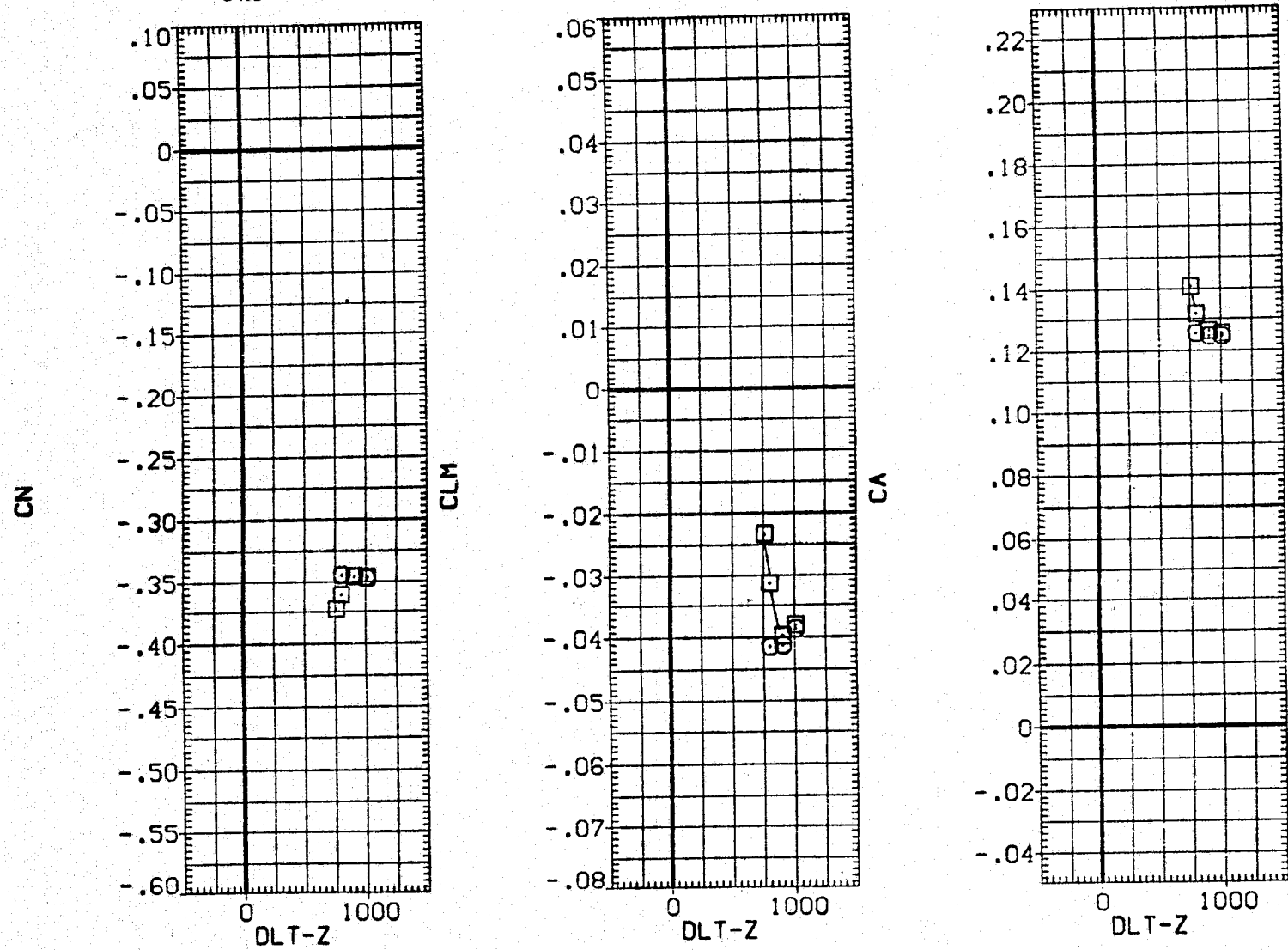


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO69)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	ELEVON
○	.440	.000	ALPHA	.000	
□	400.330	.000	DLTALF	-20.000	
		.000	MACH	5.930	
		.000	ELEVON	-40.000	
		GRID	13.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

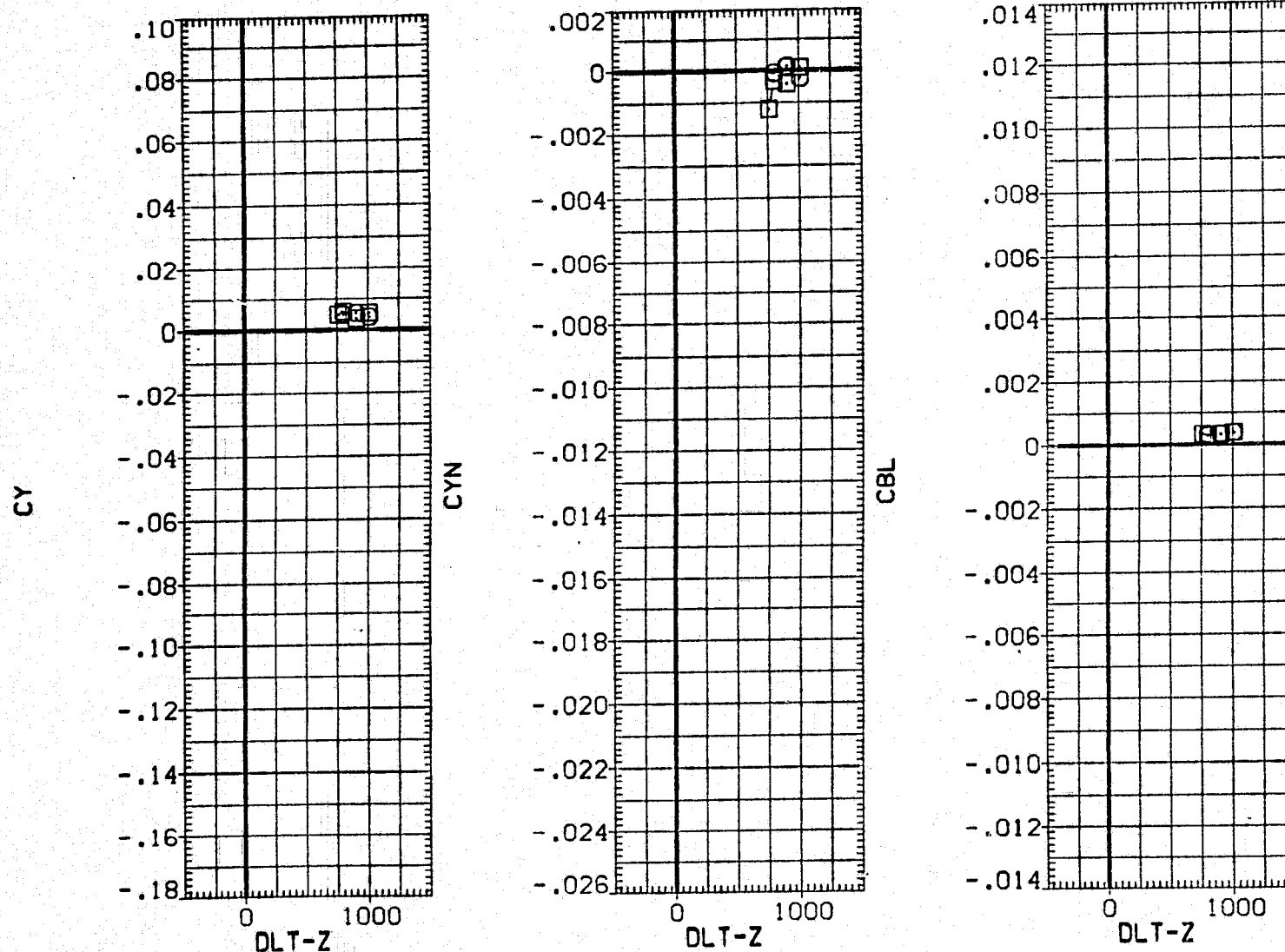


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO63)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	.000	ALPHA	.000
O	.573	BETA	3.000	DLTALF	.000
		DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	-40.000
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

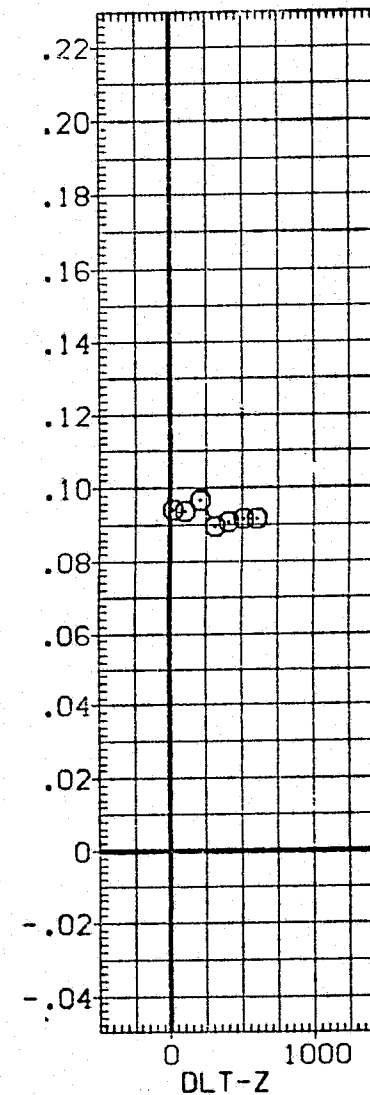
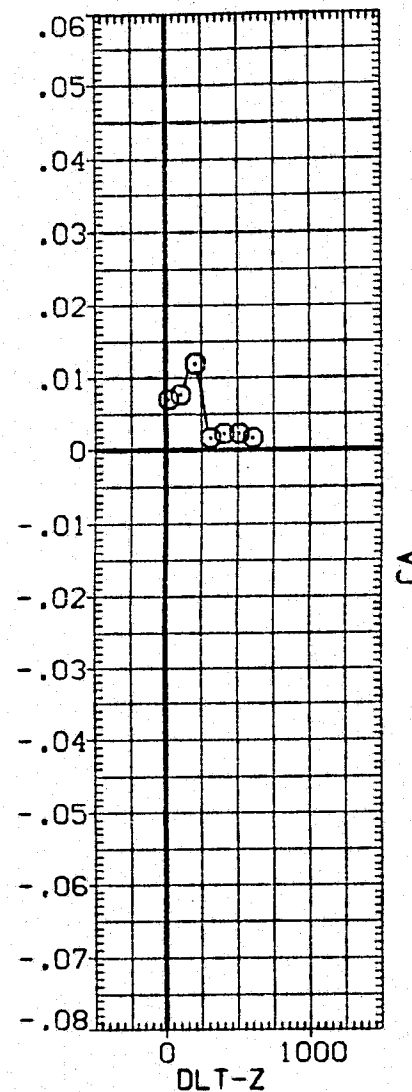
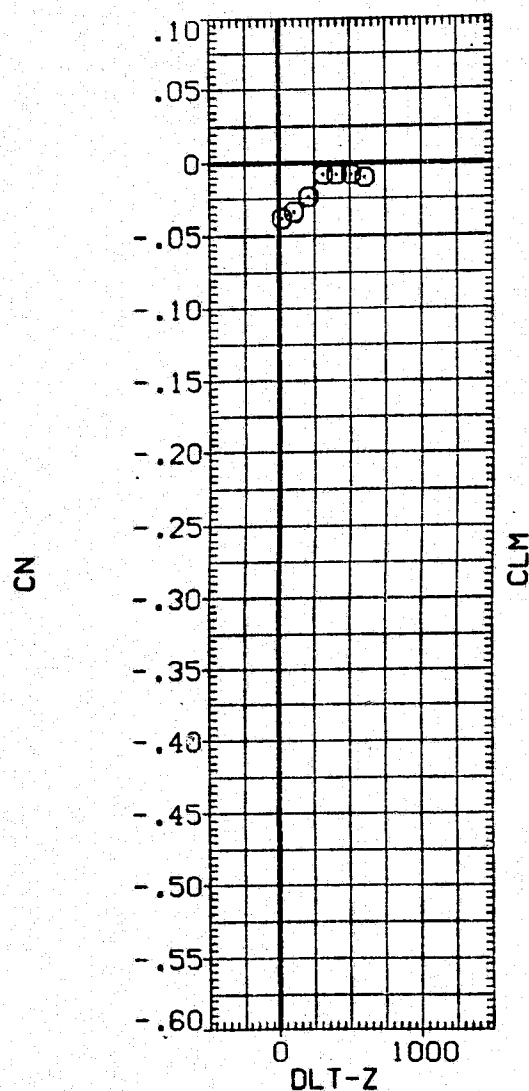


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO63)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	BETA	DLTBT	AILRON
O	.573	.000	3.000	.000	.000
		ALPHA	DLTALF	MACH	ELEVON
		.000	.000	5.930	-40.000
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

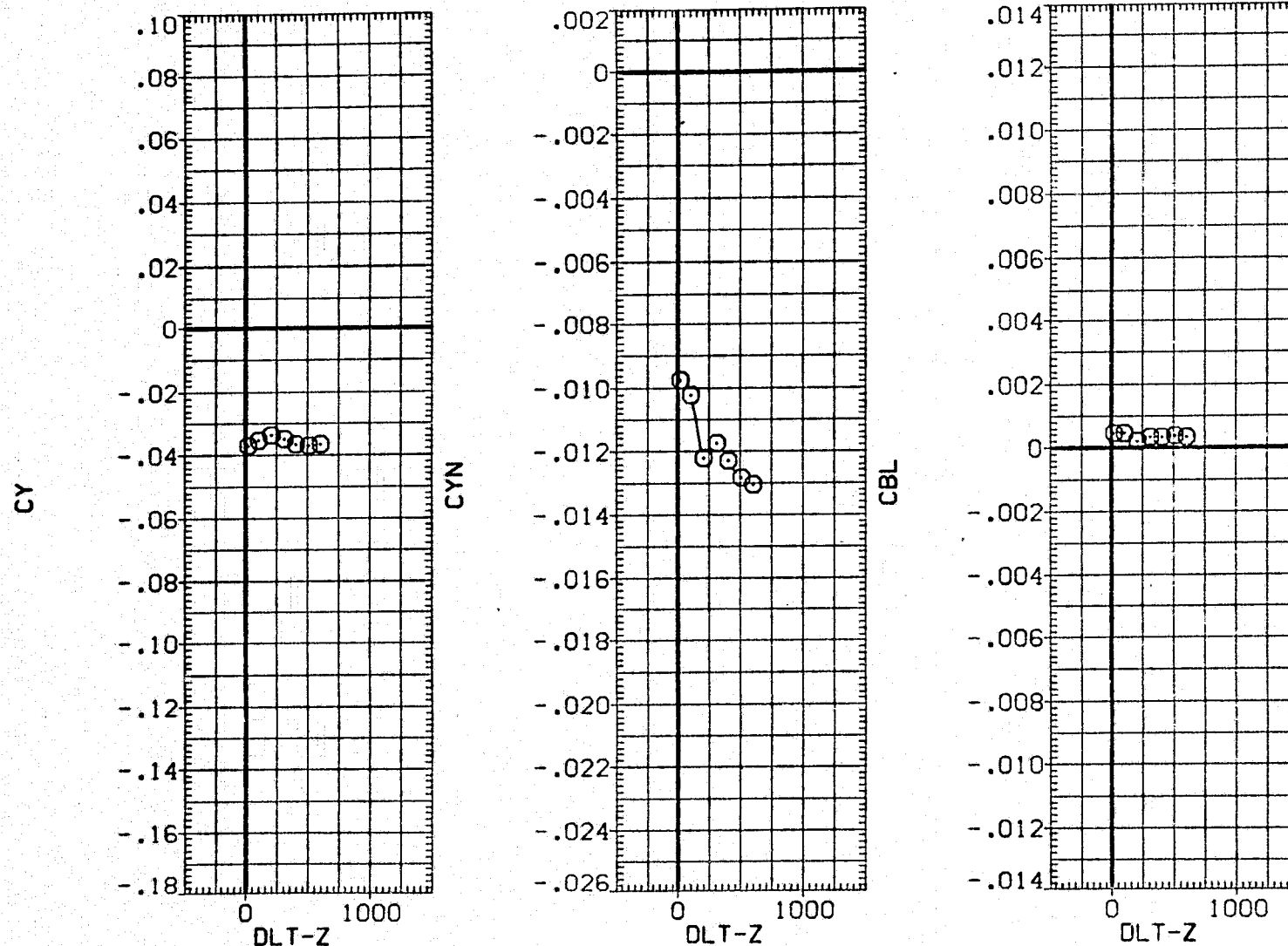


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO64)

SYMBOL	DLT-X		PARAMETRIC VALUES			
O	.552	DLT-Y	.000	ALPHA	.000	
		BETA	3.000	DLTALF	-10.000	
		DLTBTA	.000	MACH	5.930	
		AILRON	.000	ELEVON	-40.000	
		GRID	14.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

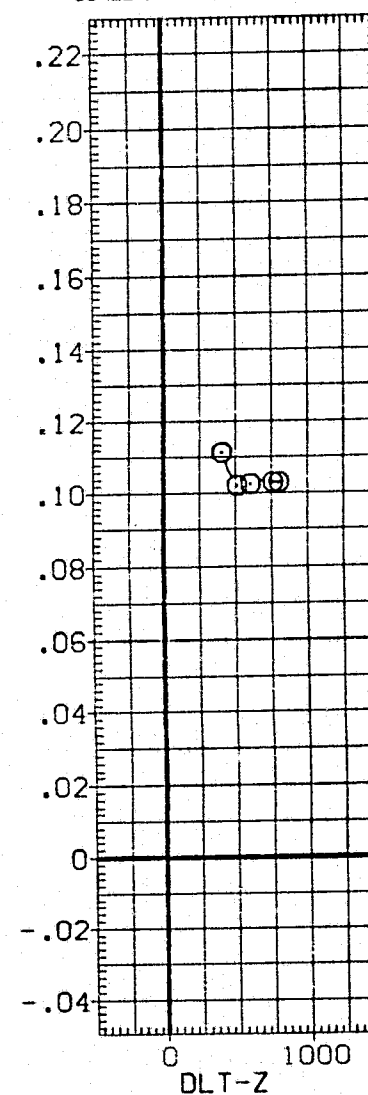
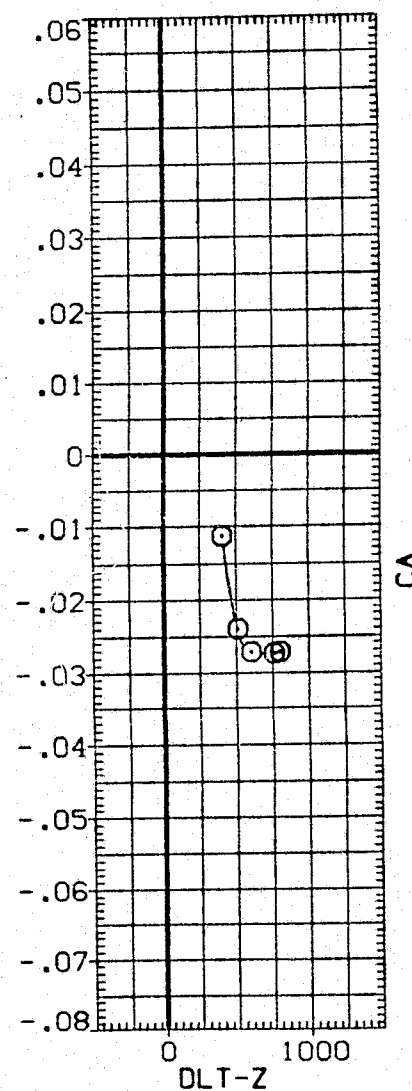
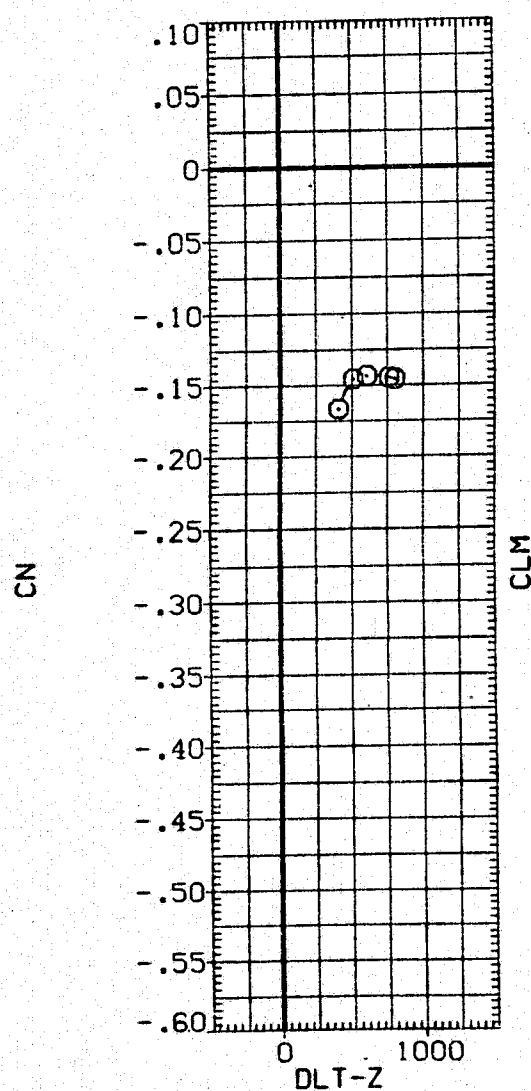


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO64)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.552	.000	BETA	.000
		3.000	DLTALF	-10.000
		.000	MACH	5.930
		.000	ELEVON	-40.000
		14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

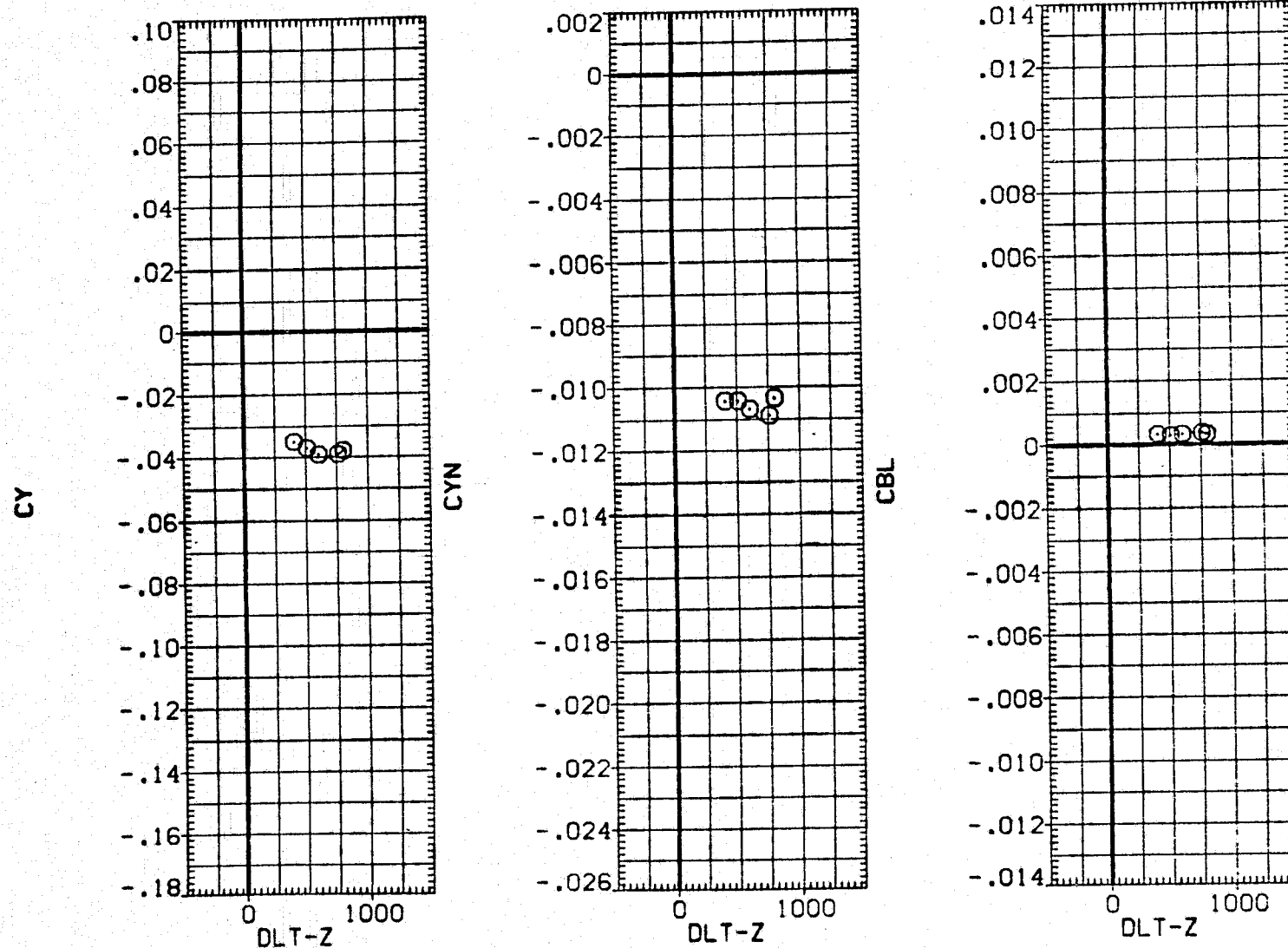


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO65)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.524	BETA	.000	.000
		DLTBTB	3.000	-20.000
		AILRON	.000	5.930
		GRID	.000	-40.000
			14.000	

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

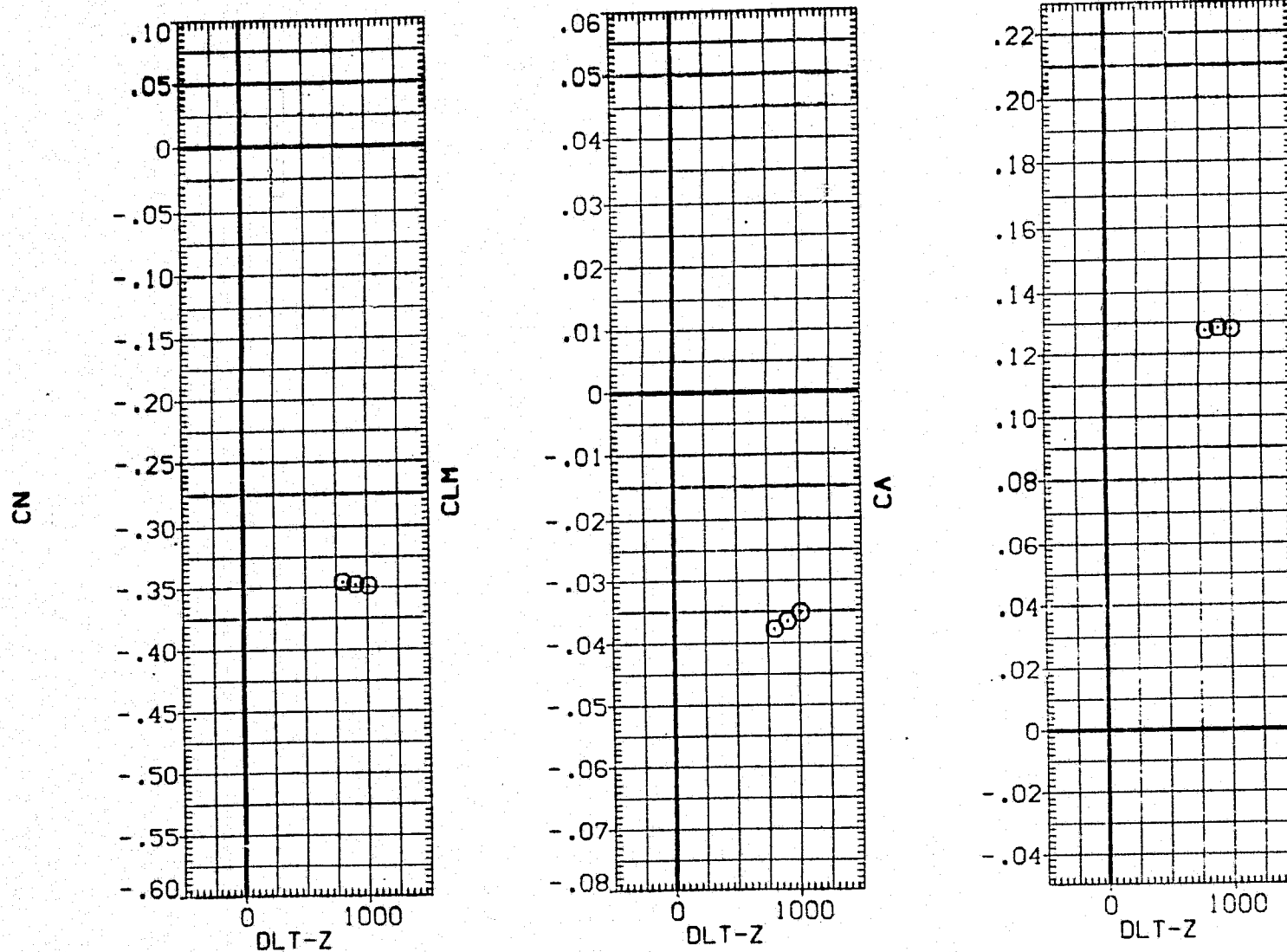


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO65)

SYMBOL	DLT-X	DLT-Y	BETA	DLTBTA	AILRON	GRID	PARAMETRIC VALUES	ALPHA	DLTALF	MACH	ELEVON
O	.524	.000	3.000	.000	.000	14.000		.000	-20.000	5.930	-40.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

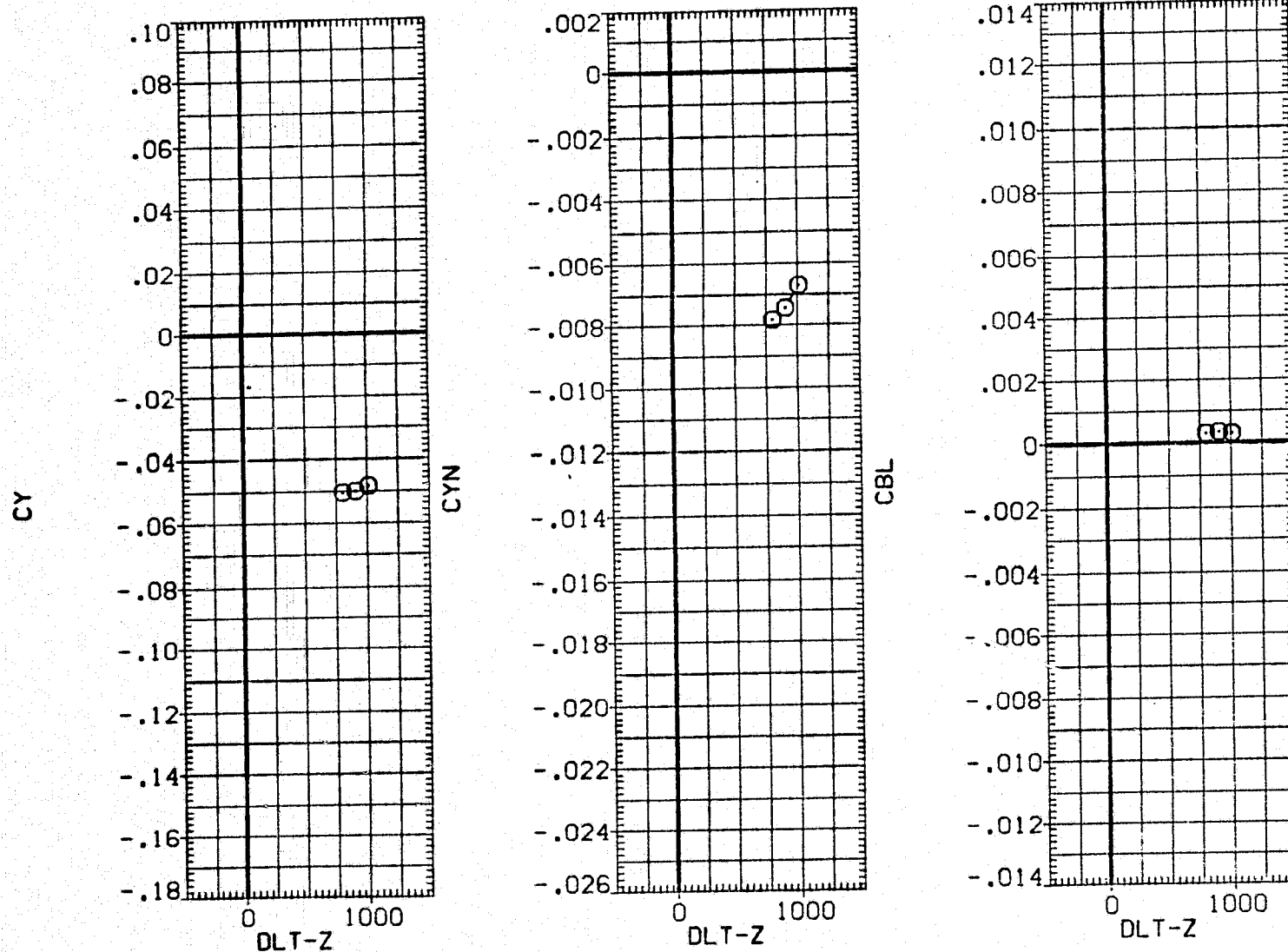


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO70)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.555	.000	5.000	.000	5.930	-40.000
□	400.470	.000				
		DLTBTA				
		AILRON				
		GRID	12.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

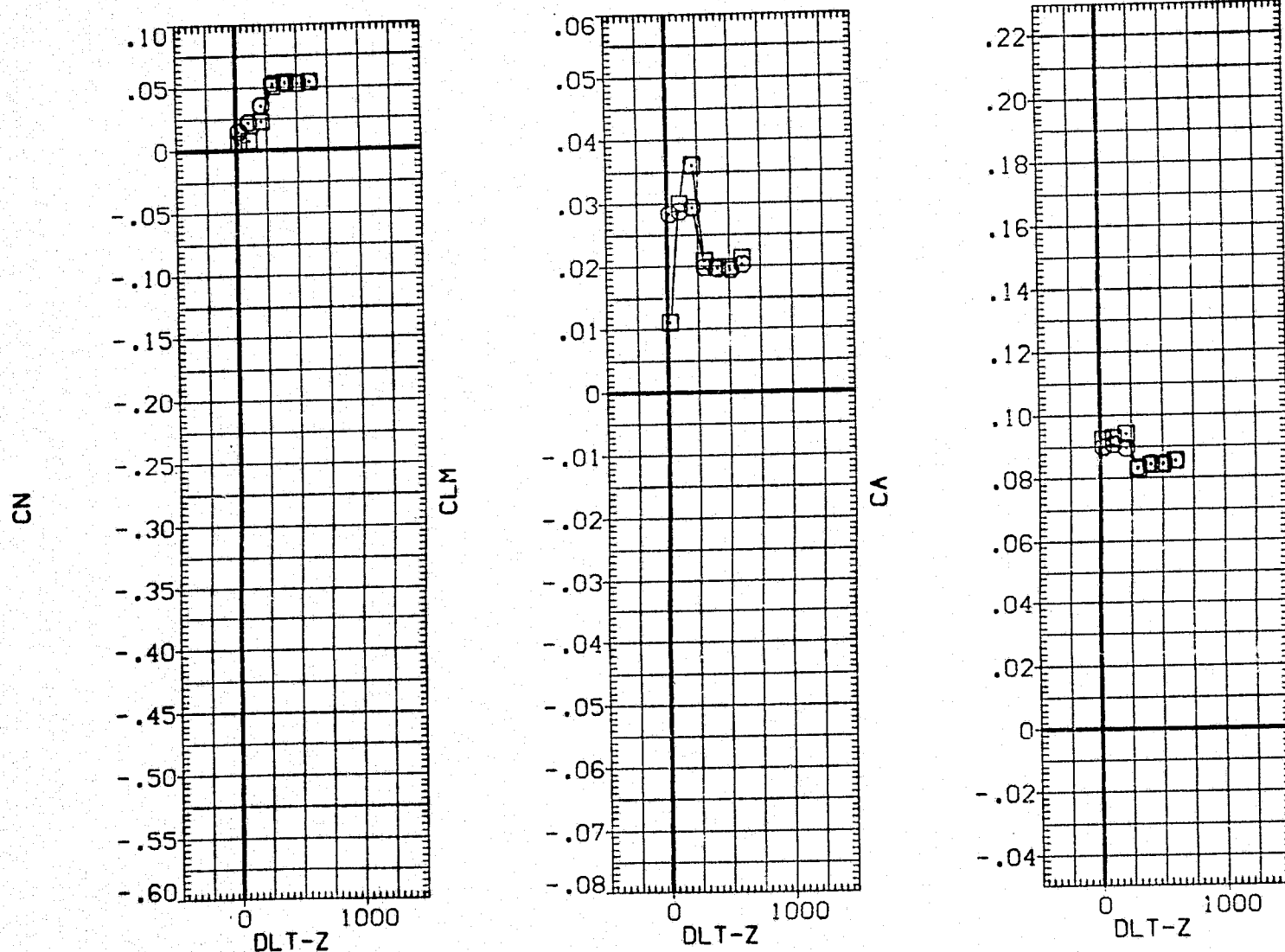


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO70)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.555	BETA	.000	ALPHA
□	400.470	DLTBTA	.000	DLTALF
		AILRON	.000	MACH
		GRID	12.000	ELEVON
				-40.000

REFERENCE INFORMATION	
SREF	2690.0000
LREF	1290.3000
BREF	1290.3000
XMRP	1360.1000
YMRP	.0000
ZMRP	416.4000
SCALE	.0100
	SQ.FT.
	IN.
	IN.
	IN. XT
	IN. YT

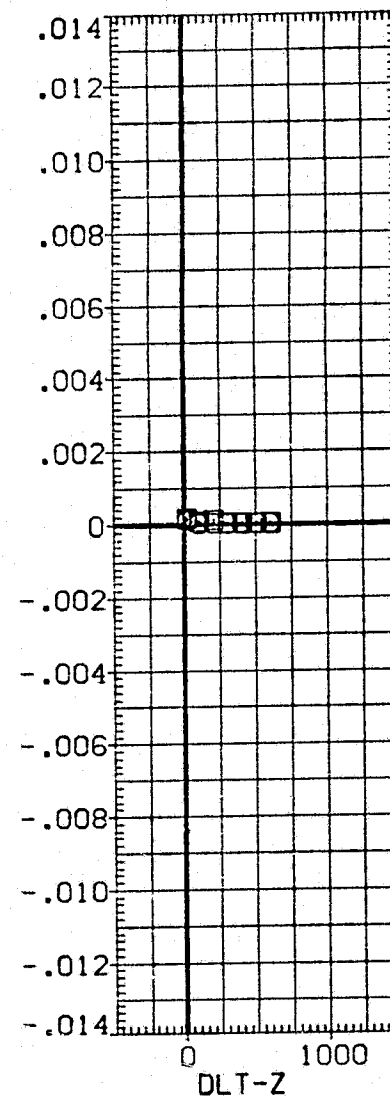
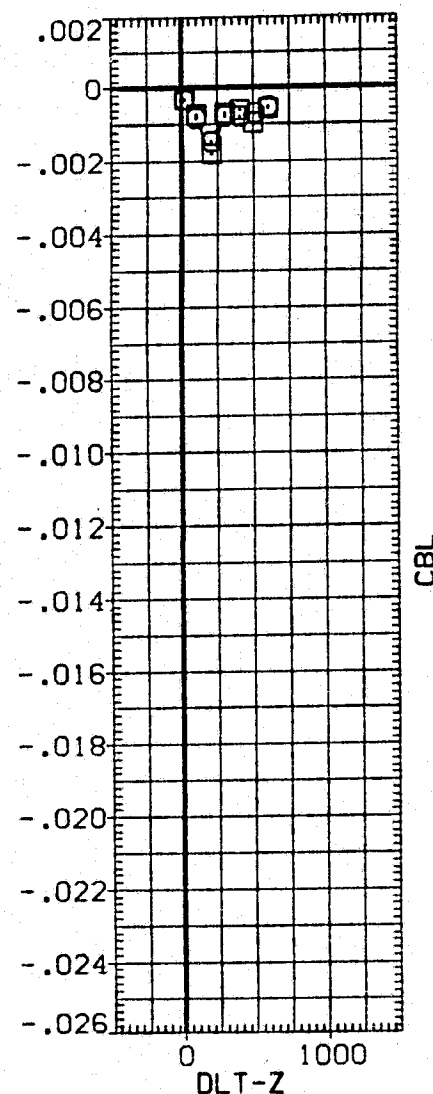
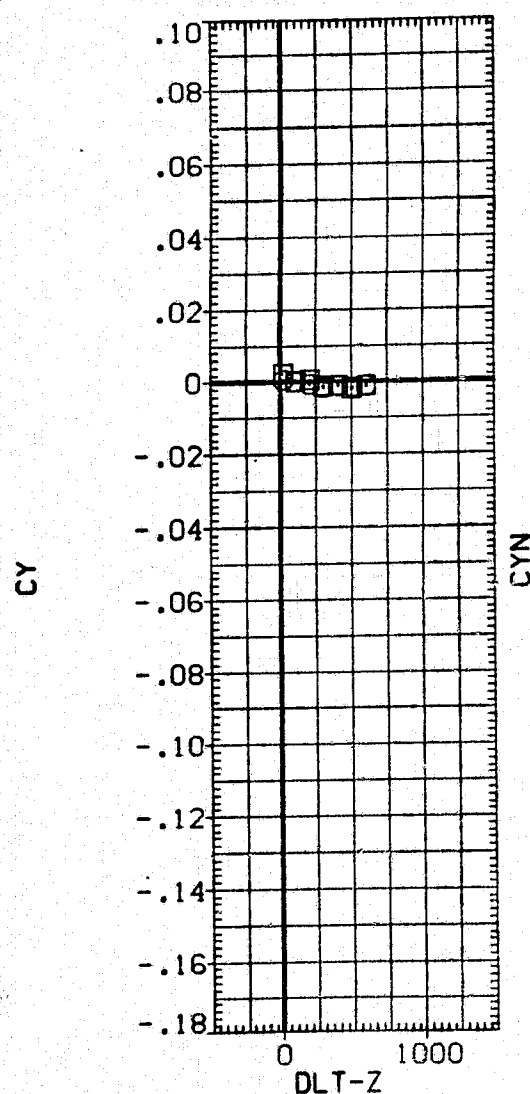


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO71)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.505	.000	ALPHA	5.000
□	400.460	.000	DLTALF	-10.000
		.000	MACH	5.930
		.000	ELEVON	-40.000
		.000		
		12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

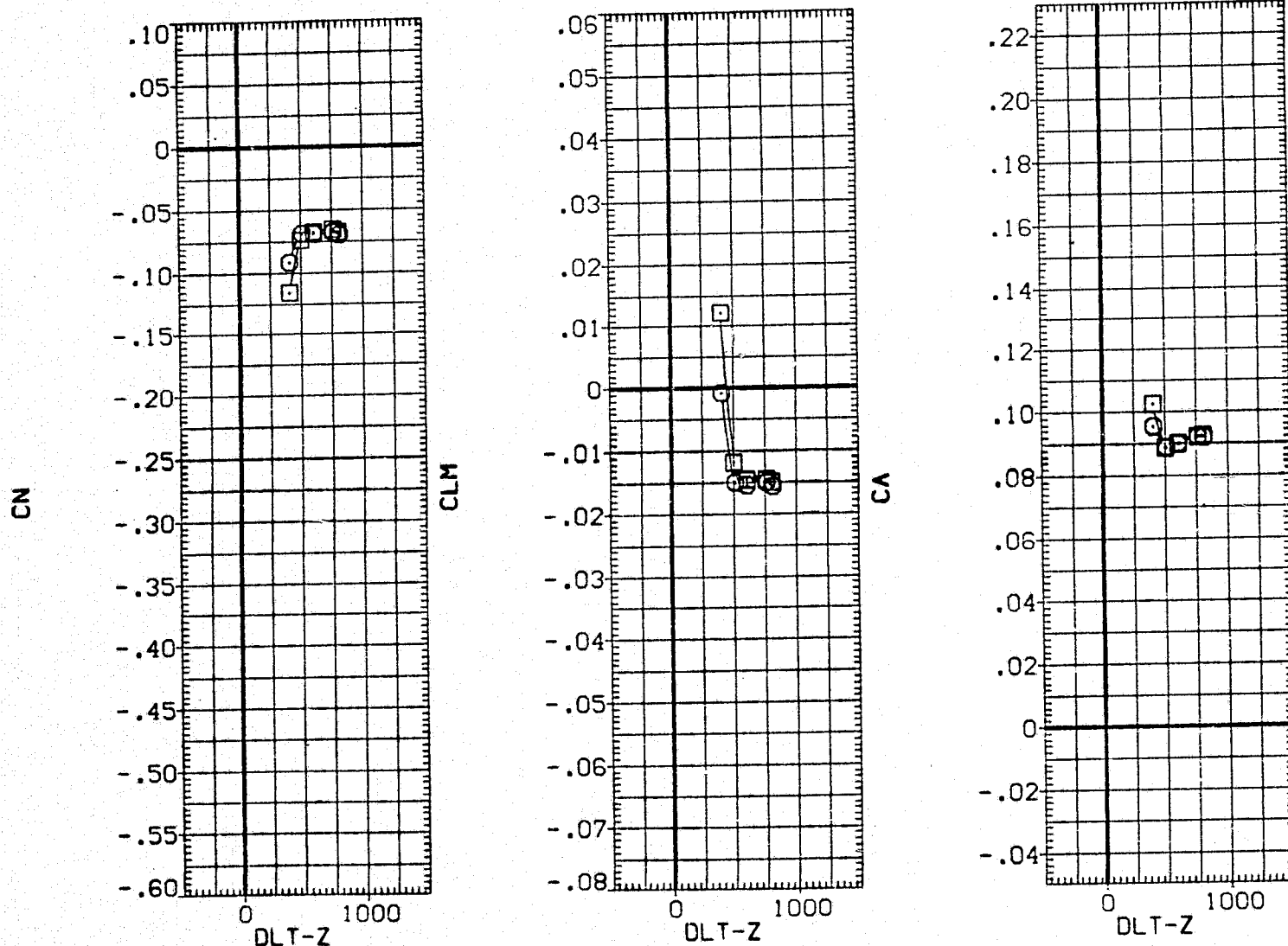


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO71)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLT-X	DLT-Y
○	.505	.000	.000	5.000	.000	.000
□	400.460	.000	.000	DLTALF	-10.000	.000
		DLTBTBTA	.000	MACH	5.930	.000
		AILRON	.000	ELEVON	-40.000	.000
		GRID	12.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

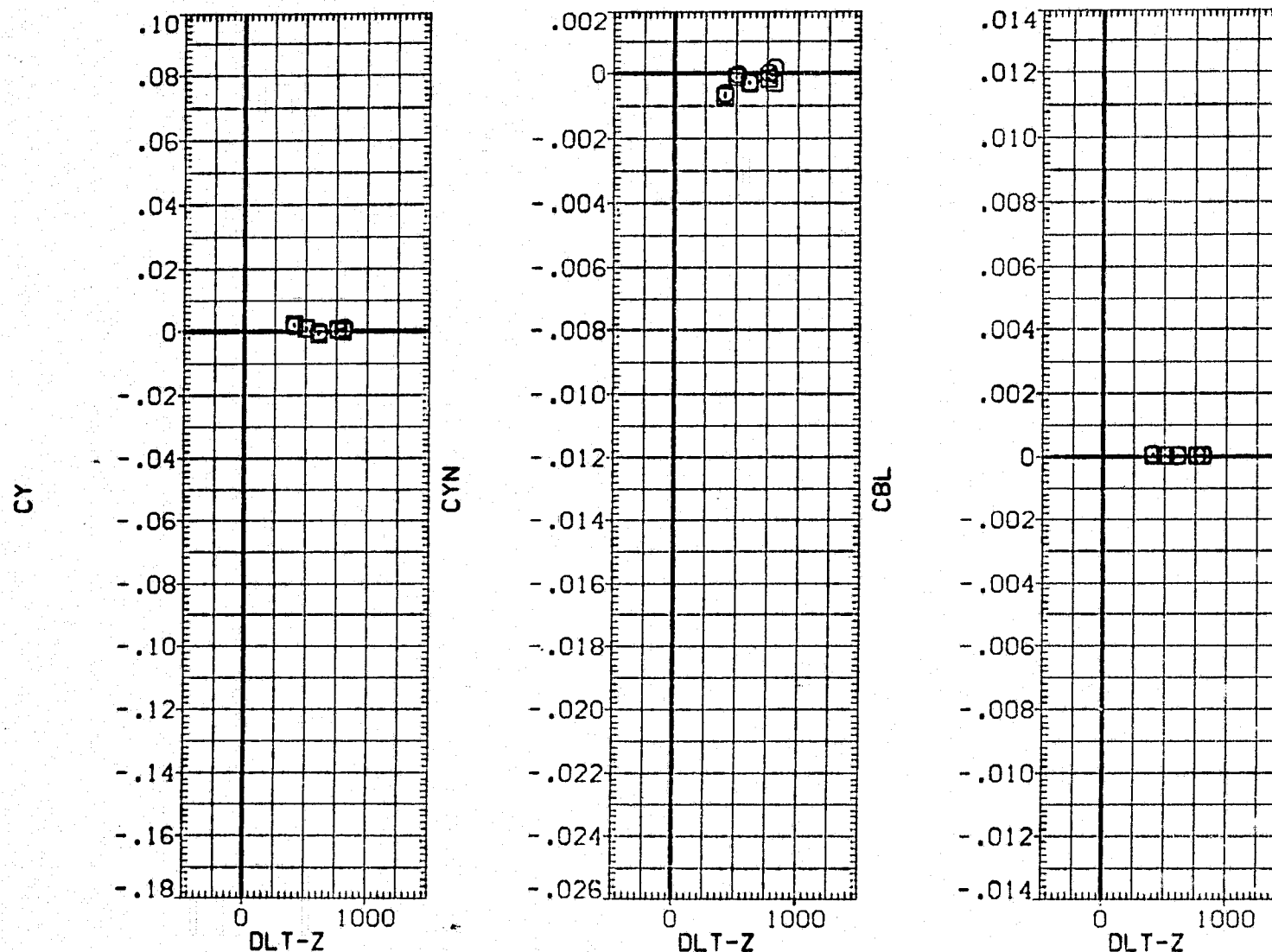


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO73)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.391	.000	ALPHA	5.000
□	400.570	.000	DLTALF	-20.000
		.000	MACH	5.930
		.000	ELEVON	-40.000
		GRID	12.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

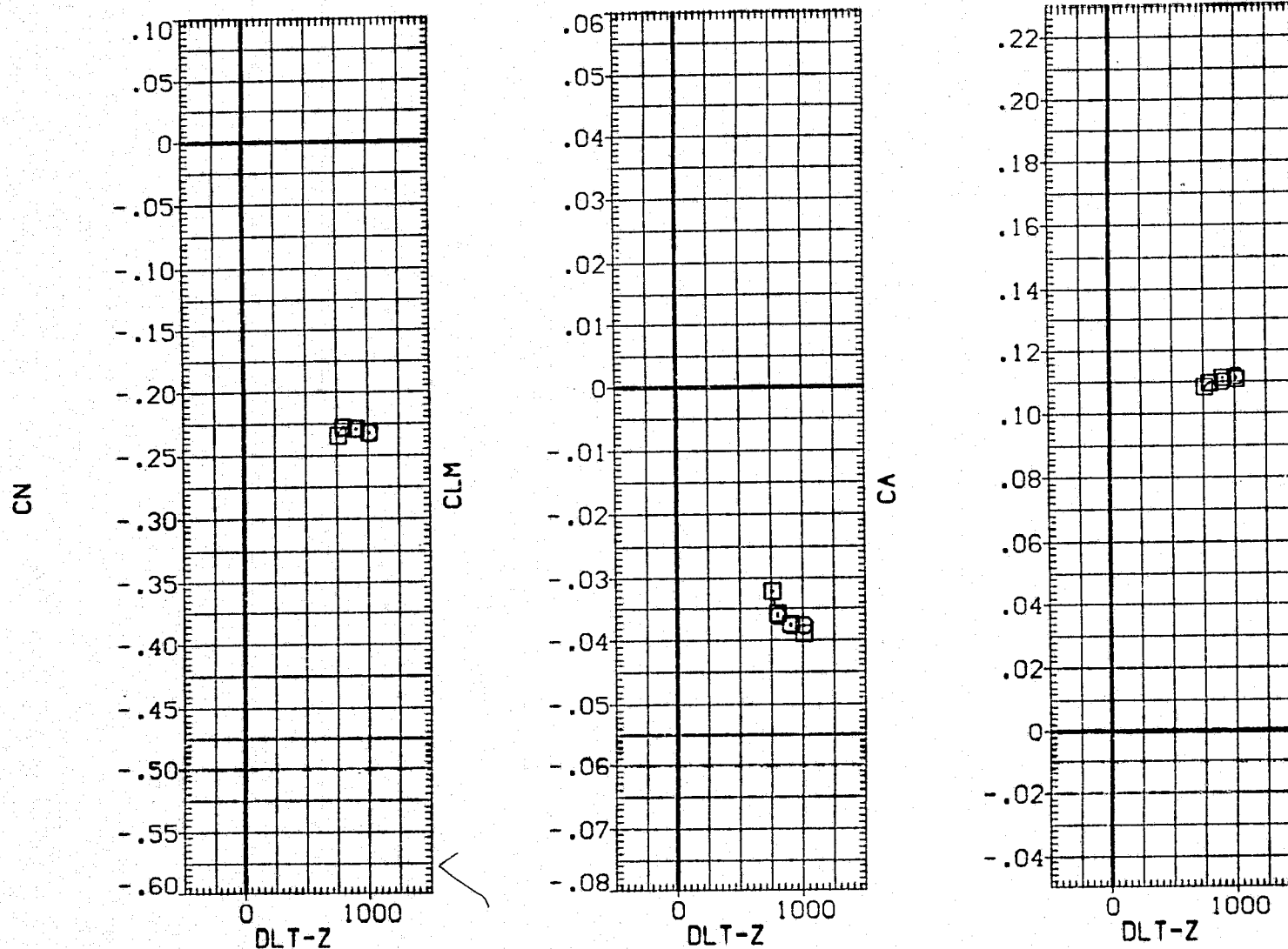


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO73)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.391	.000	DLTALF	5.000
□	400.570	.000	MACH	-20.000
		.000	ELEVON	5.930
		.000		-40.000
		GRID		
		12.000		

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

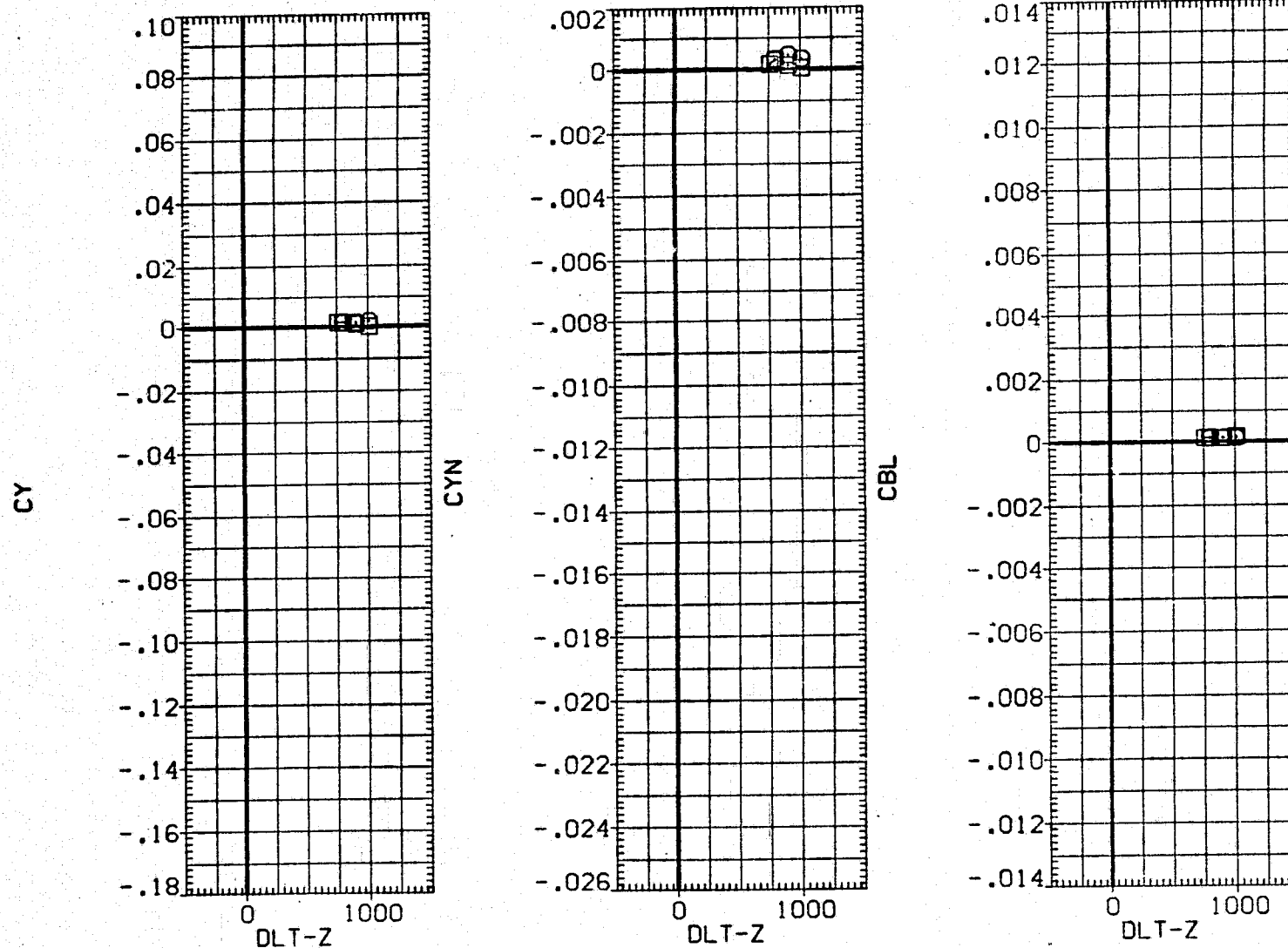


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO74)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.531	.000		-5.000
□	400.470	.000		.000
		DLTBT		MACH
		.000		5.930
		ATLRON		ELEVON
		.000		-40.000
		GRID		11.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

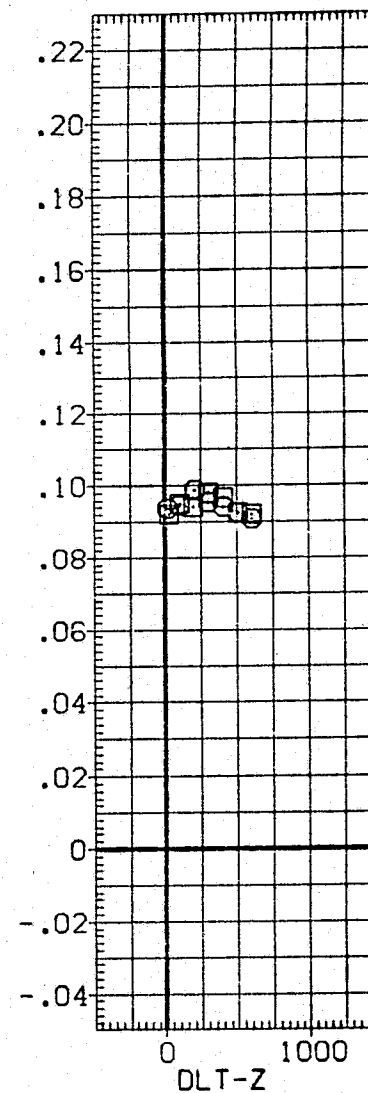
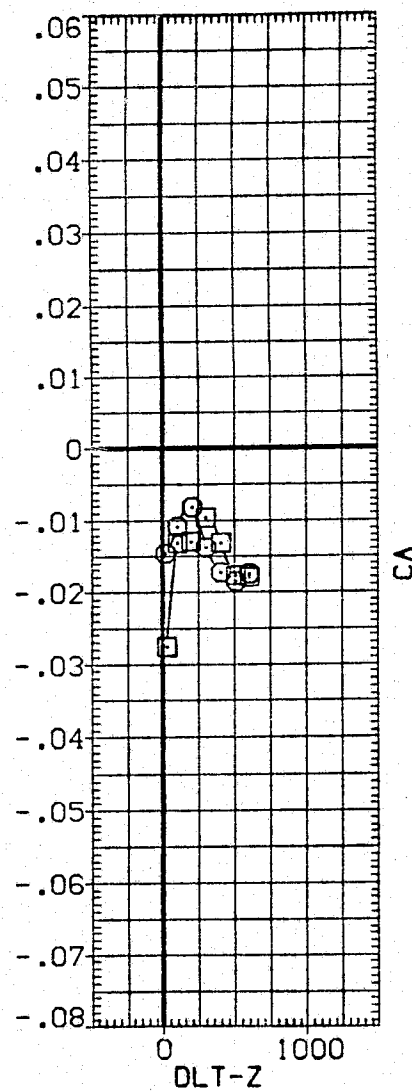
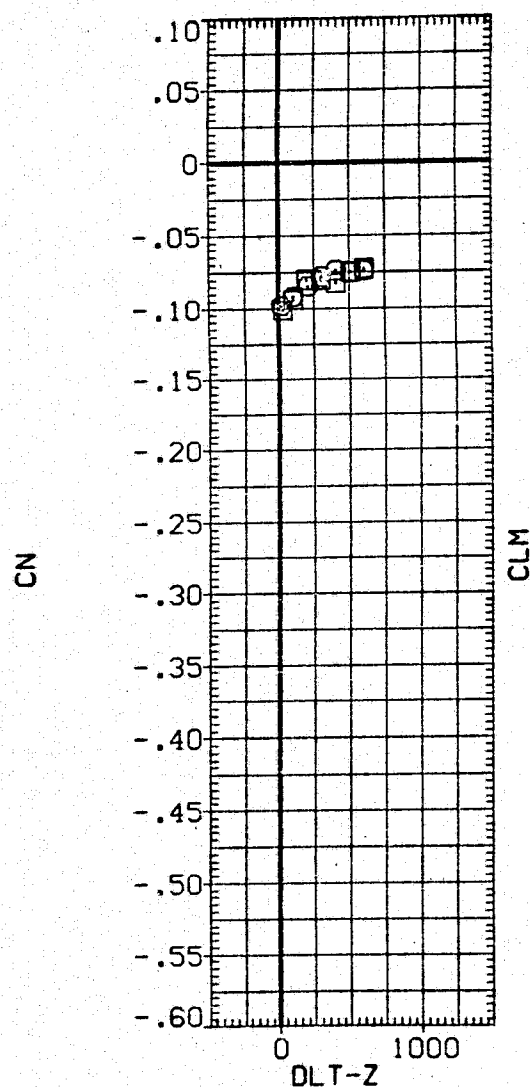


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO74)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.531		.000	.000	5.930	-40.000
□	400.470		.000	.000		
		DLTBT	.000			
		AILRON	.000			
		GRID	11.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

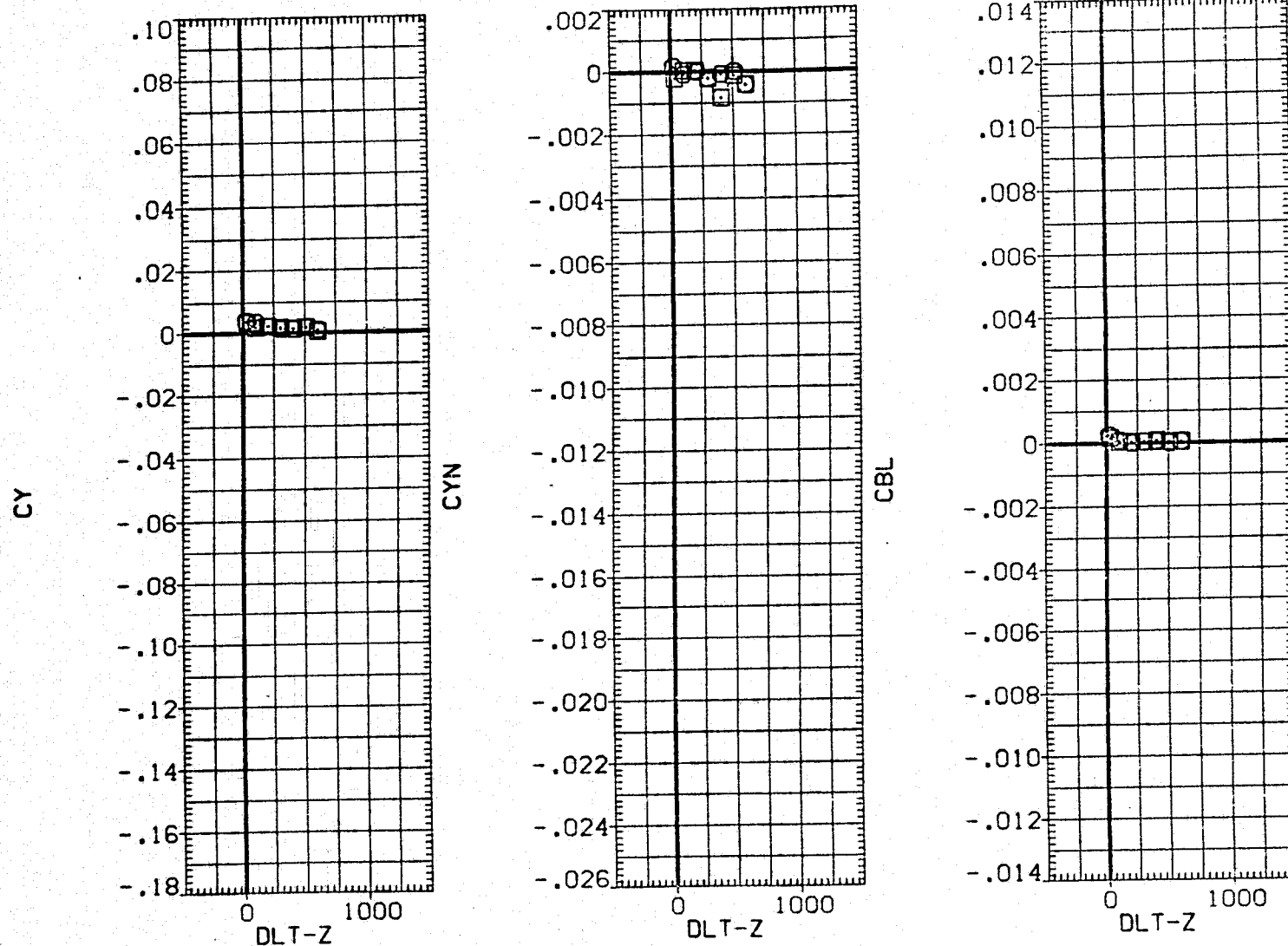


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO75)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.522	BETA	.000	-10.000	5.930	-40.000
□	400.530	DLTBTA	.000			
		AILRON	.000			
		GRID	11.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

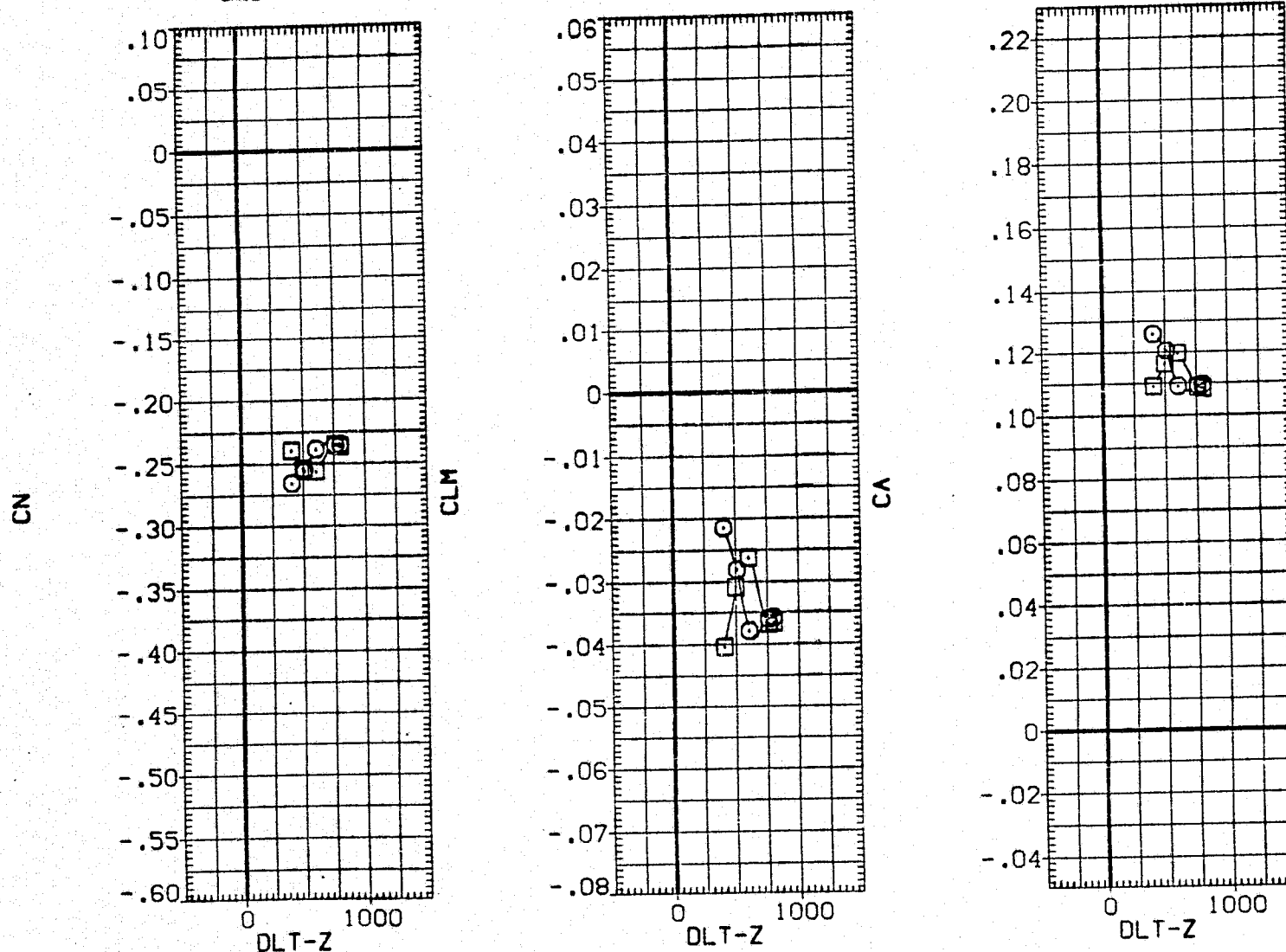


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO75)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	ALPHA	
○	.522	.000	-5.000	
□	400.530	BETA	.000	DLTALF
		DLTBTA	.000	MACH
		AILRON	.000	ELEVON
		GRID	11.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

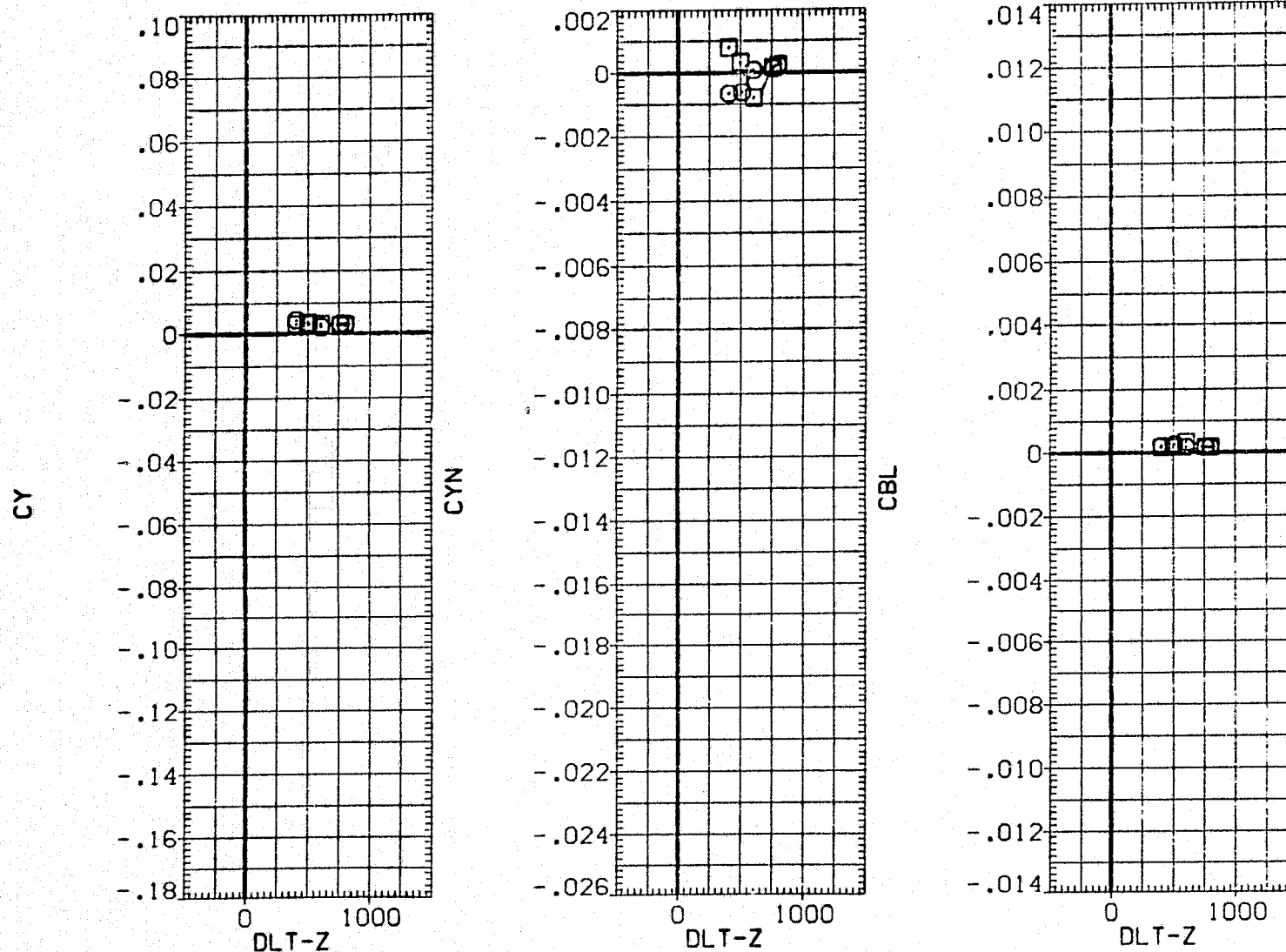


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO77)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.441	.000	ALPHA	-5.000
□	400.420	.000	DLTALF	-20.000
		.000	MACH	5.930
		.000	ELEVON	-40.000
		11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
ZMRP	.0000	IN. YT
SCALE	416.4000	IN. ZT
	.0100	

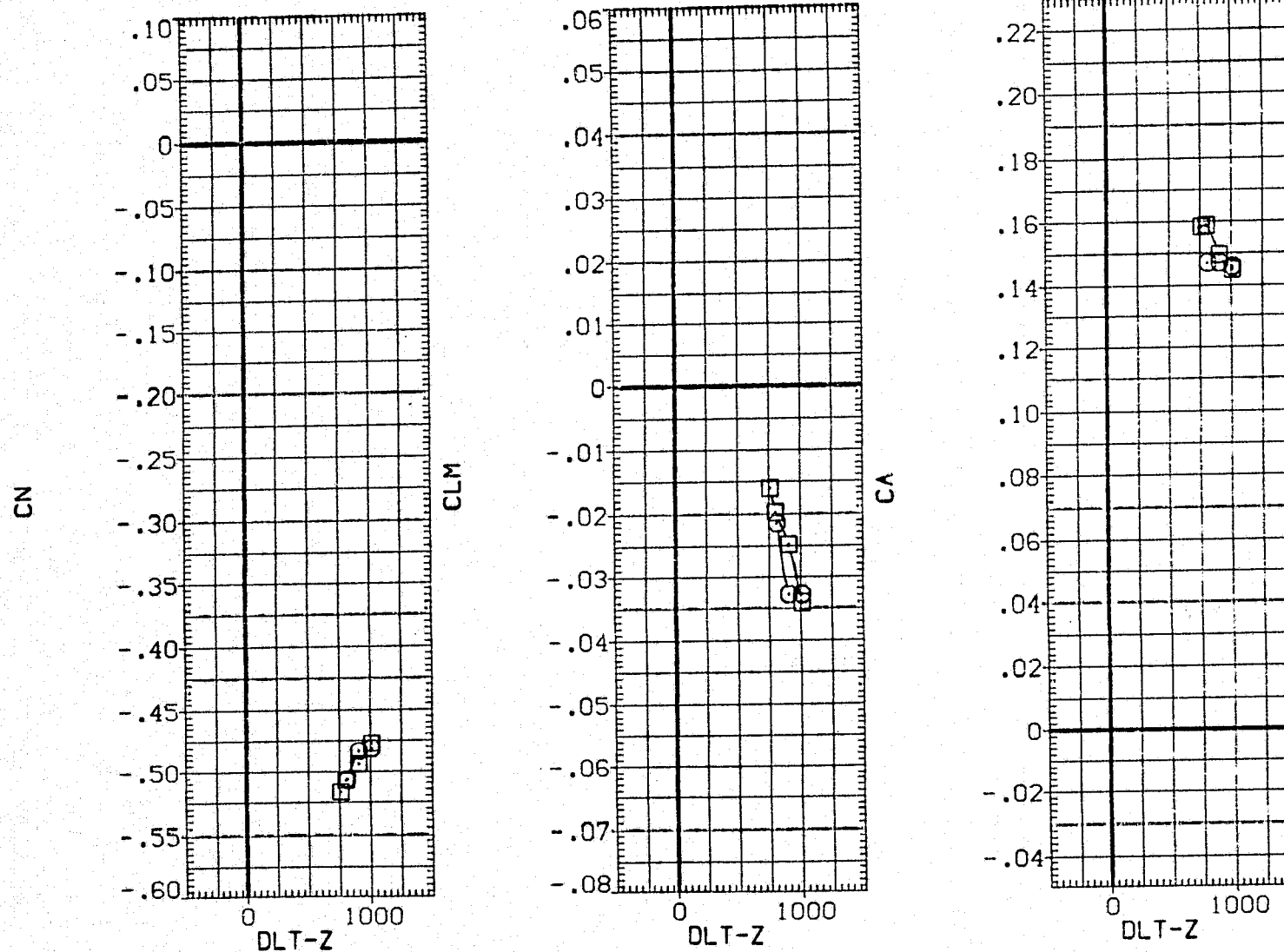


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO77)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.441	.000	ALPHA	-5.000
□	400.420	.000	DLTALF	-20.000
		.000	MACH	5.930
		.000	ELEVON	-40.000
		11.000	GRID	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

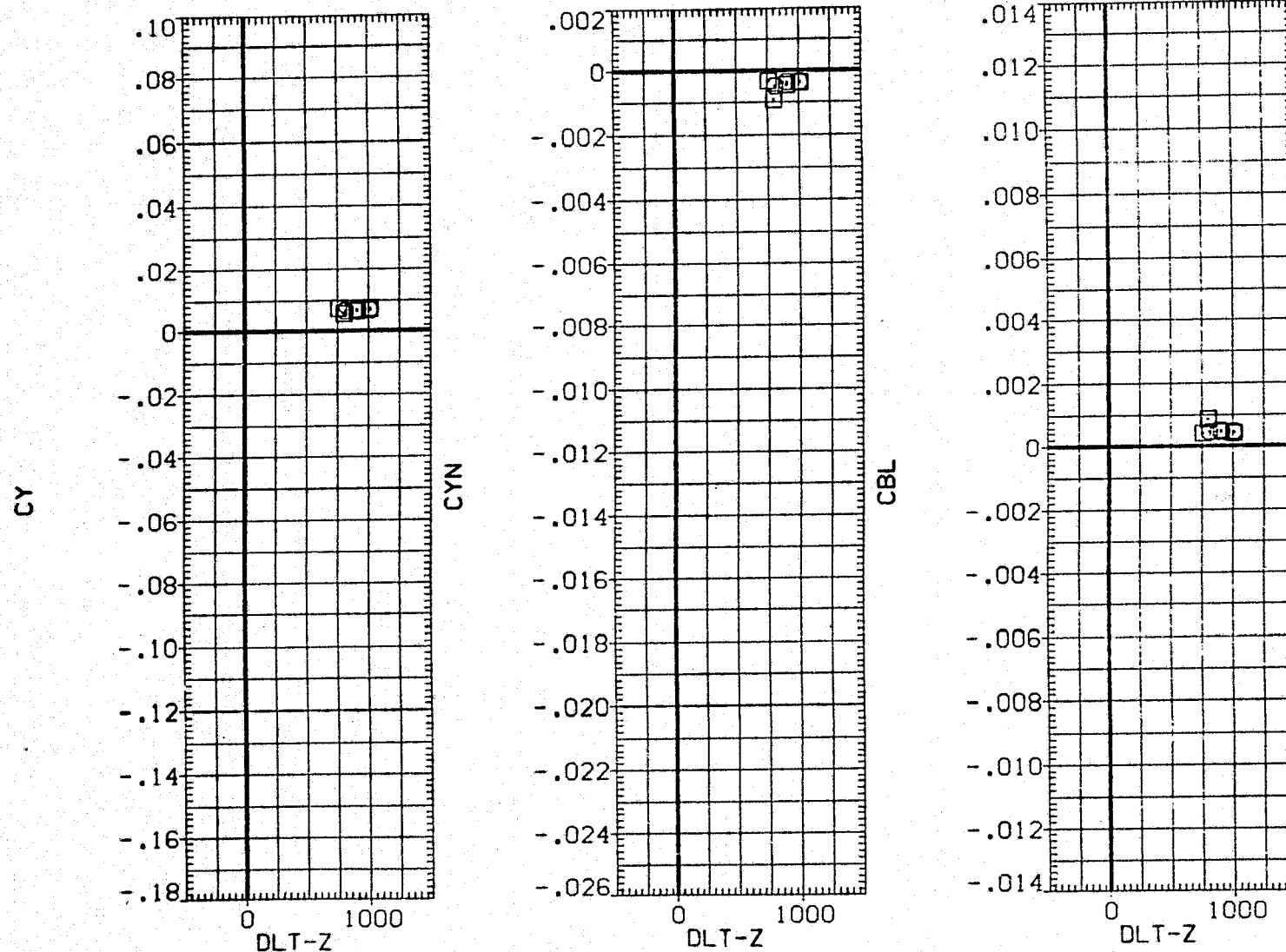


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO78)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.415	.000	DLTALF	-10.000	
□	400.490	.000	MACH	5.930	
		.000	ELEVON	-40.000	
		10.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

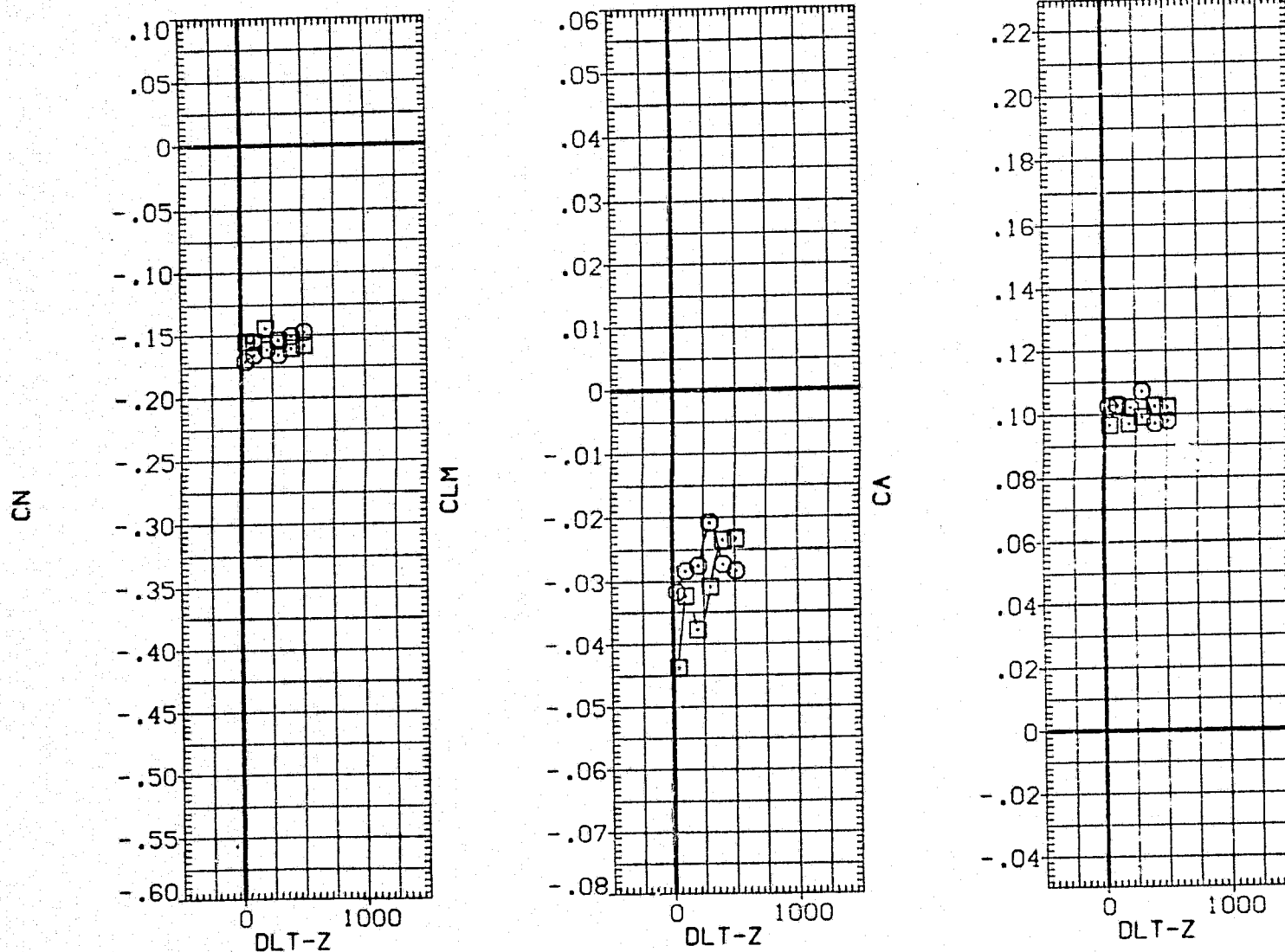


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO78)

SYMBOL	DLT-X		PARAMETRIC VALUES			
○	.415	DLT-Y	.000	ALPHA	-10.000	
□	400.490	BETA	.000	DLTALF	.000	
		DLTBTA	.000	MACH	5.930	
		AILRON	.000	ELEVON	-40.000	
		GRID	10.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

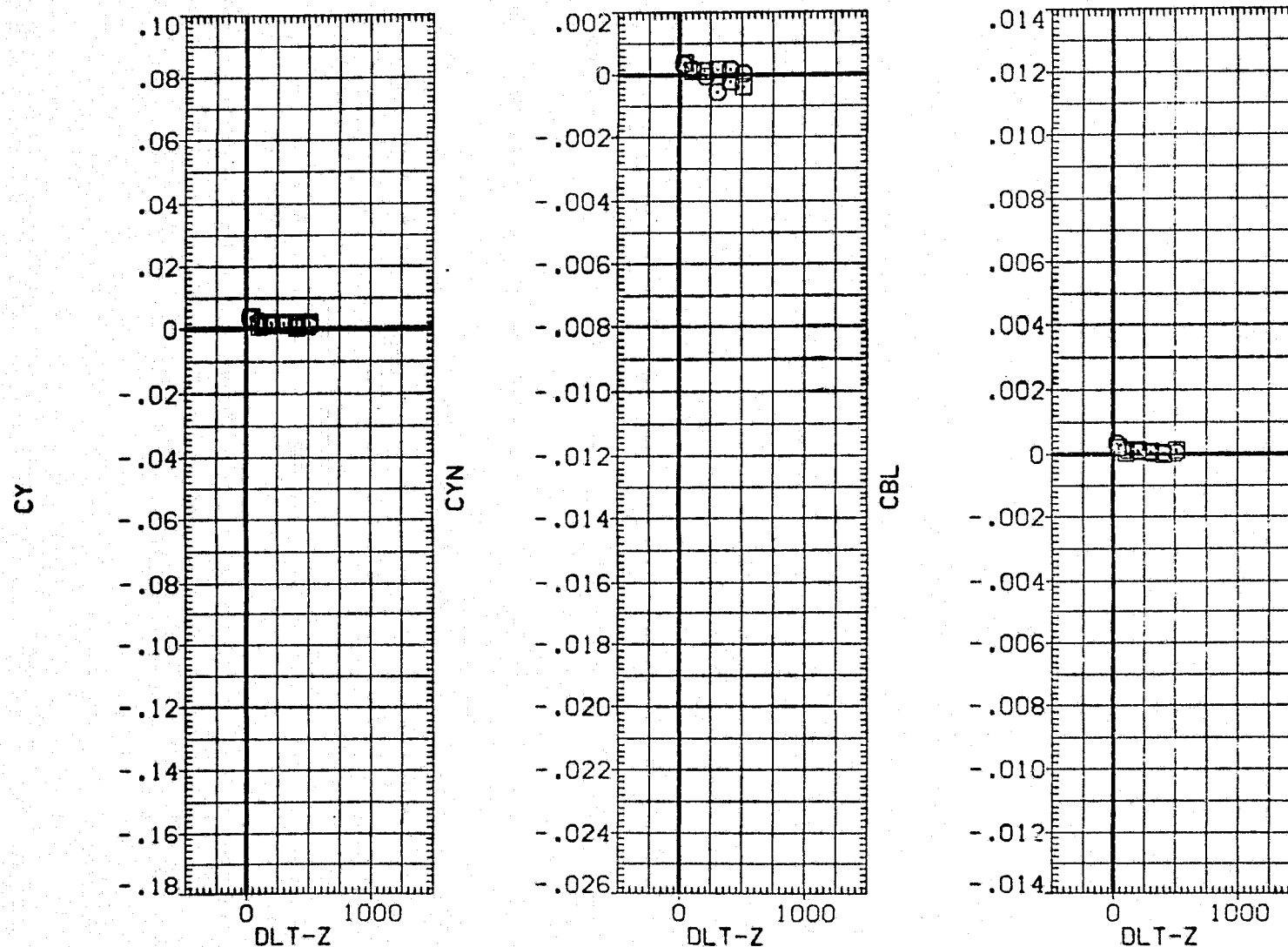


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO79)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.428	.000		-10.000
□	400.350	BETA	.000	DLTALF
		DLTBTA	.000	MACH
		AILRON	.000	ELEVON
		GRID	10.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

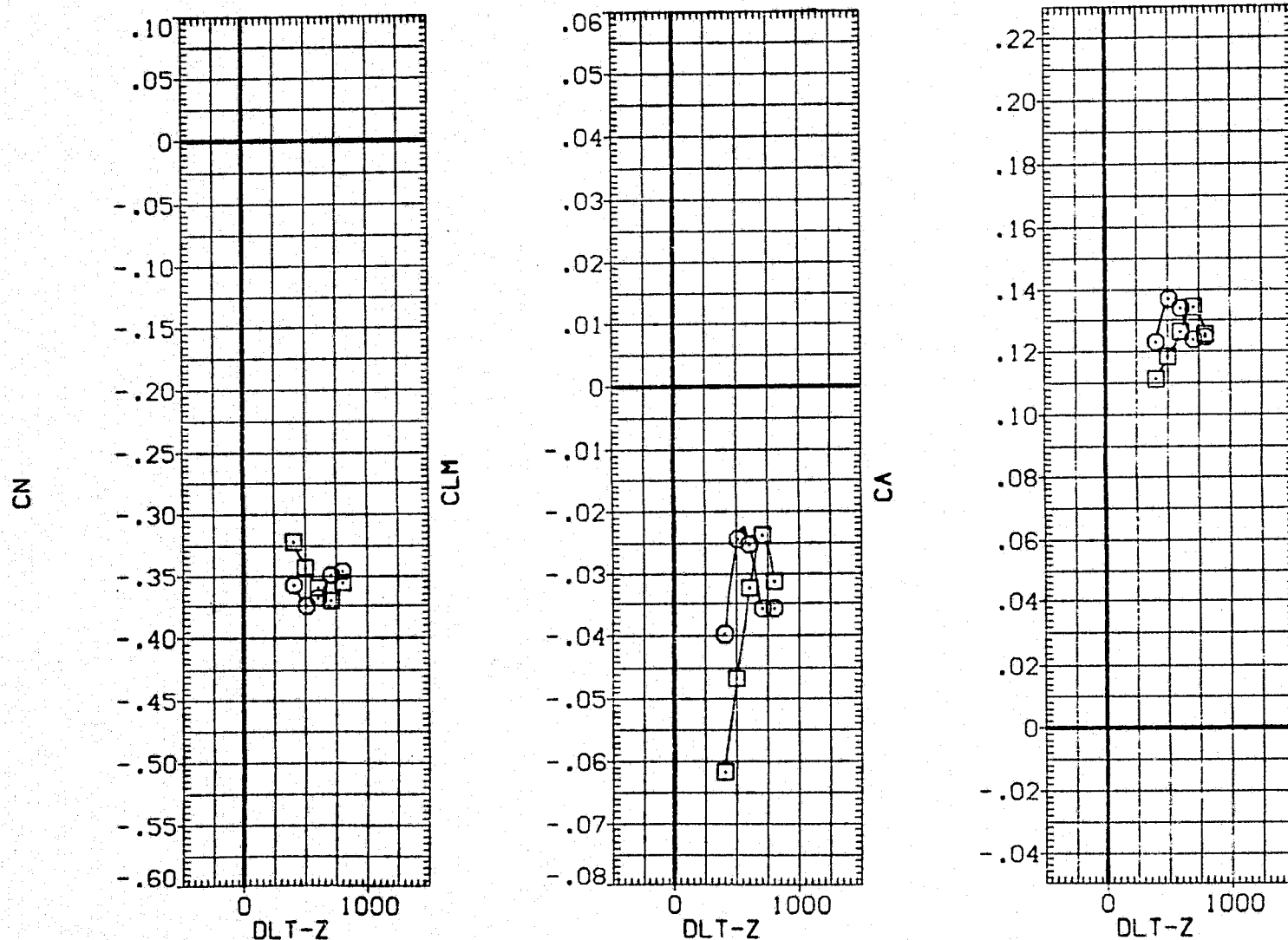


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO79)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.428	.000	ALPHA	-10.000
□	400.350	.000	DLTALF	-10.000
		.000	MACH	5.930
		.000	ELEVON	-40.000
		10.000	GRID	

REFERENCE INFORMATION		
SREF	2590.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

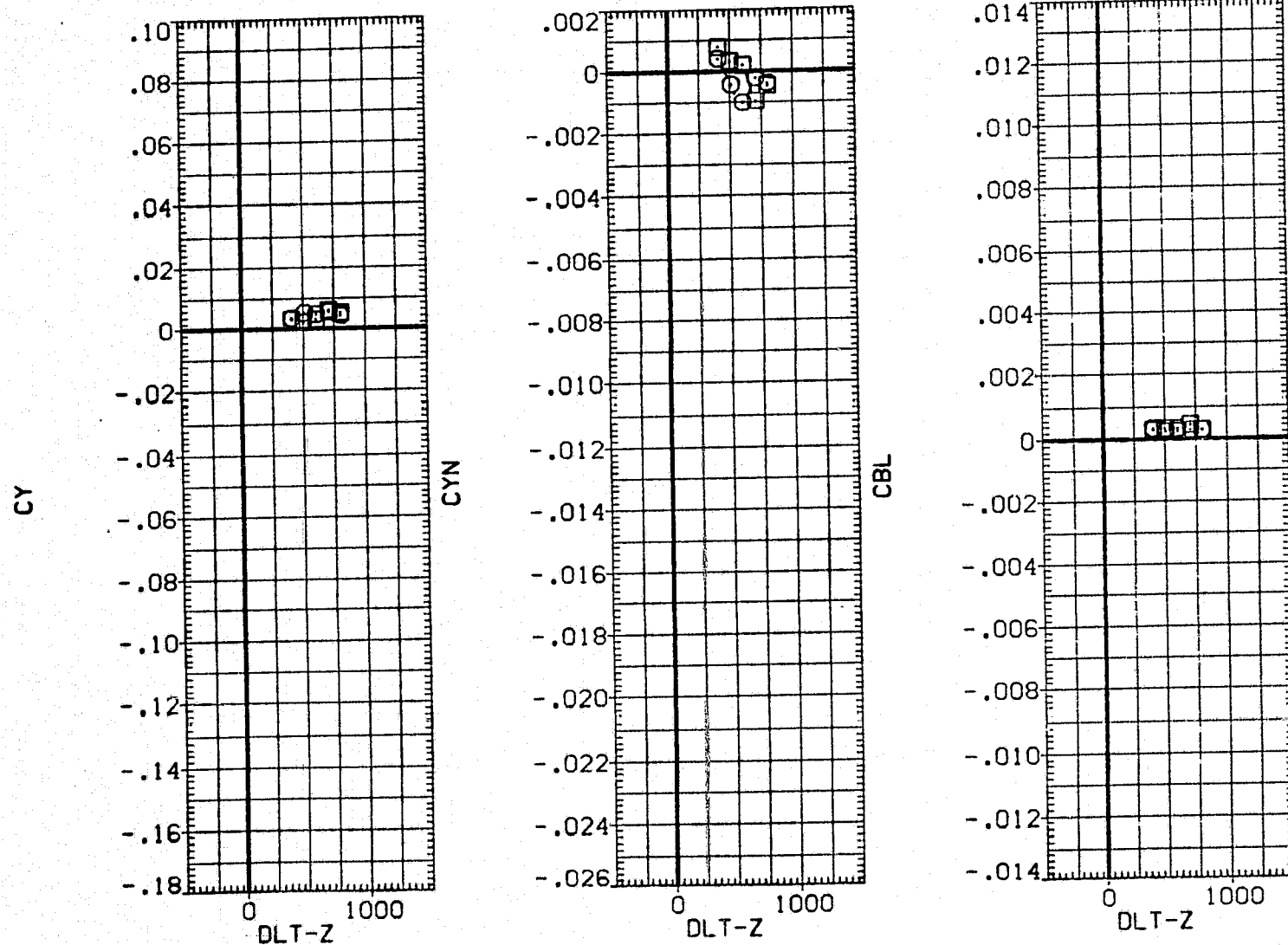


FIGURE 26 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO83)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
○	.443	.000	BETA	.000	MACH
□	400.530	.000	DLTBTA	.000	ELEVON
		15.000	AILRON	.000	
		13.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

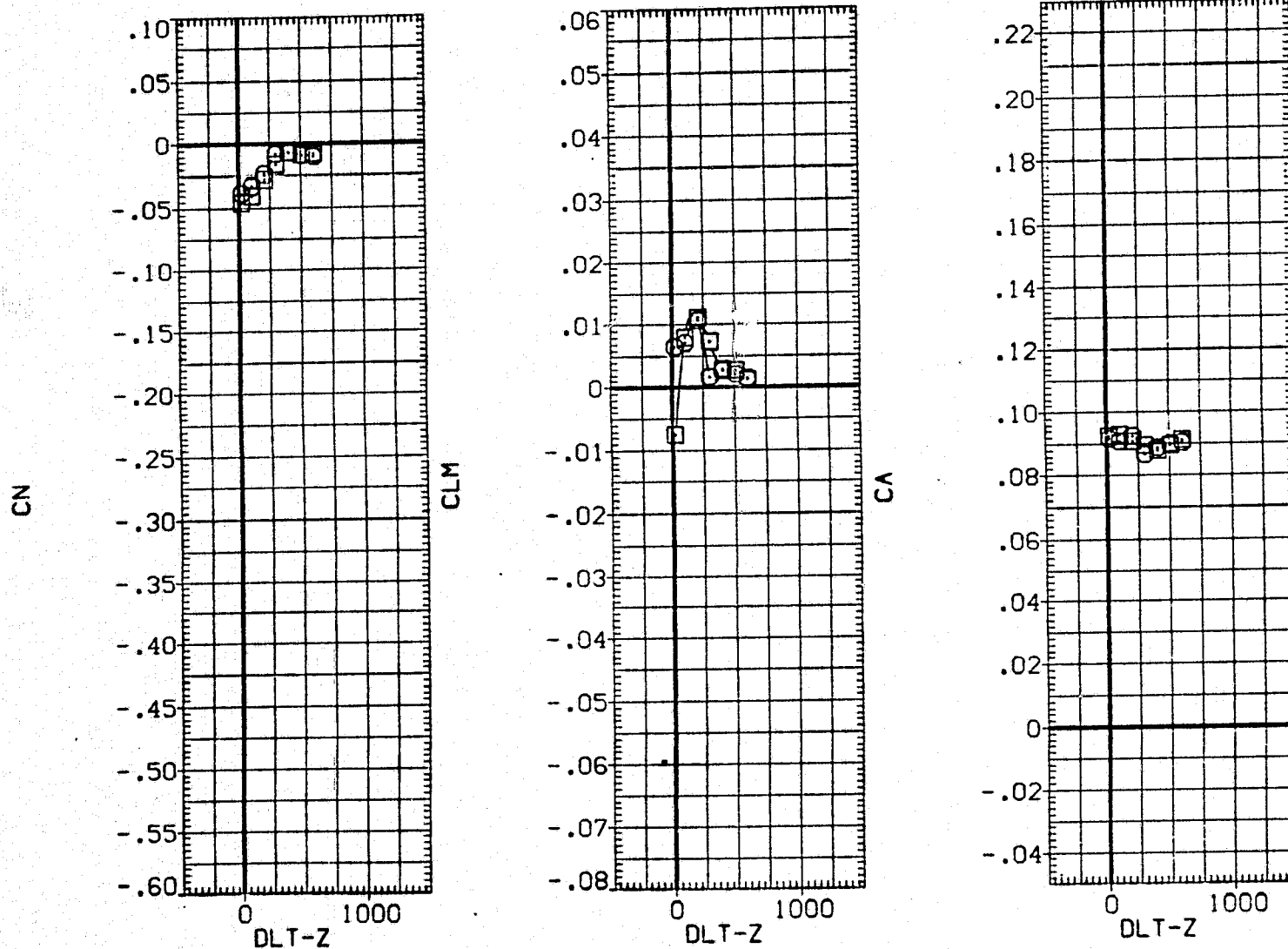


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR083)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
□	.443	.000	DLTALF	.000
□	400.530	BETA	.000	MACH
		DLTBTA	.000	5.930
		AILERON	15.000	ELEVON
		GRID	13.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

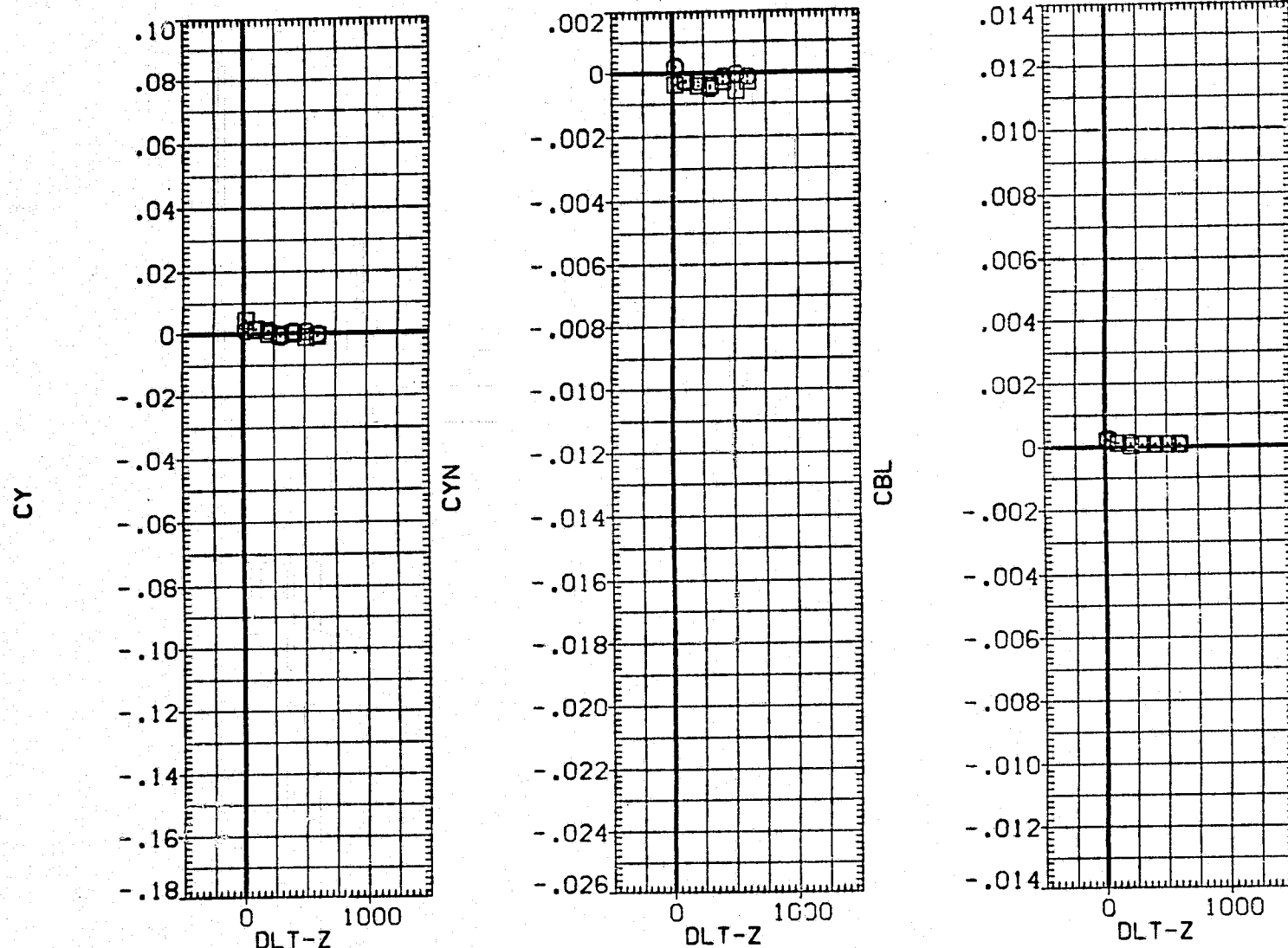


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO84)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.586	.000	ALPHA	.000
□	400.410	.000	DLTALF	-10.000
		.000	MACH	5.930
		15.000	ELEVON	.000
		13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

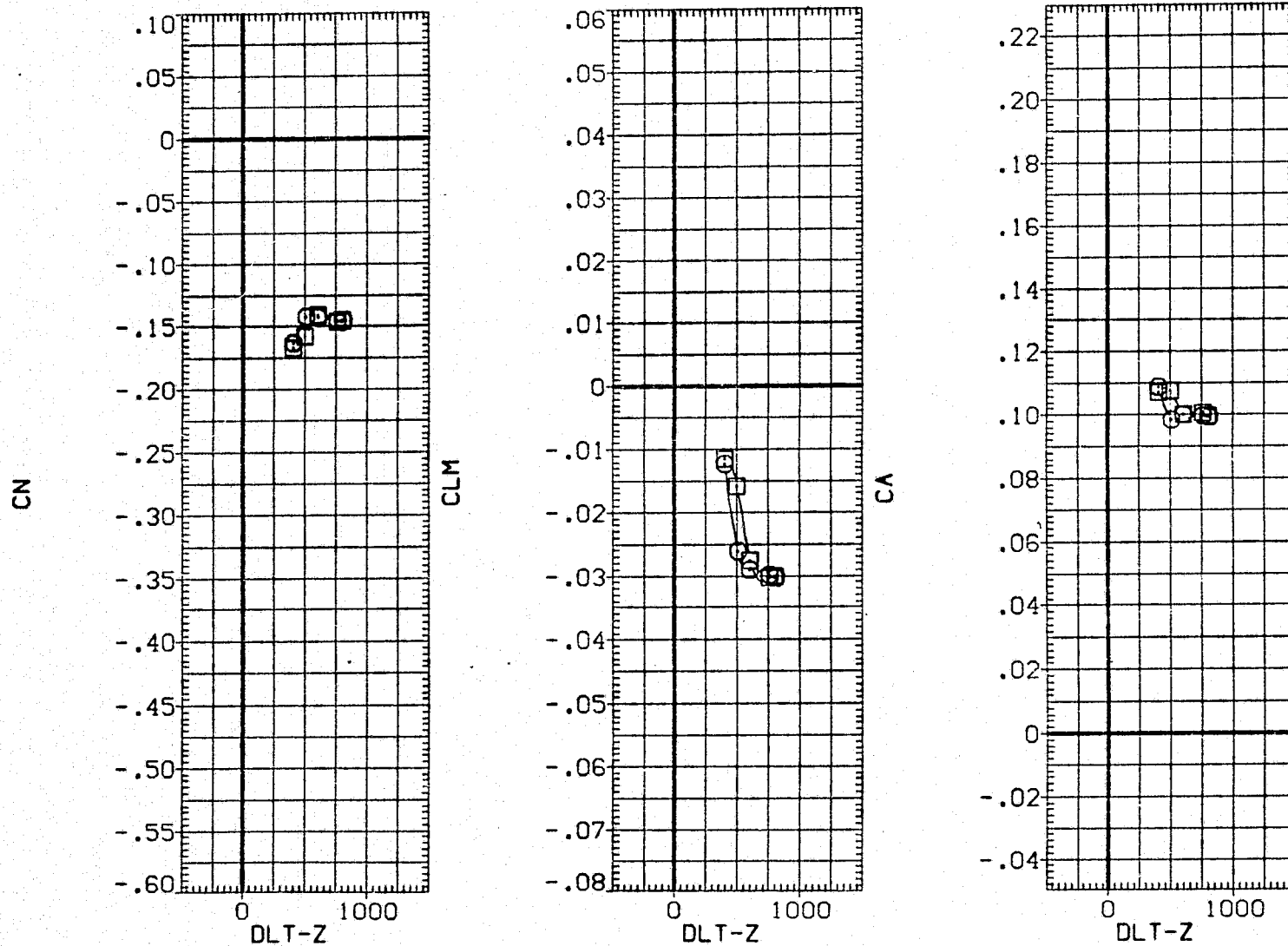


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO84)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.586	BETA	.000	.000
□	400.410	DLTBTA	.000	DLTALF -10.000
		AILERON	15.000	MACH 5.930
		GRID	13.000	ELEVON .000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

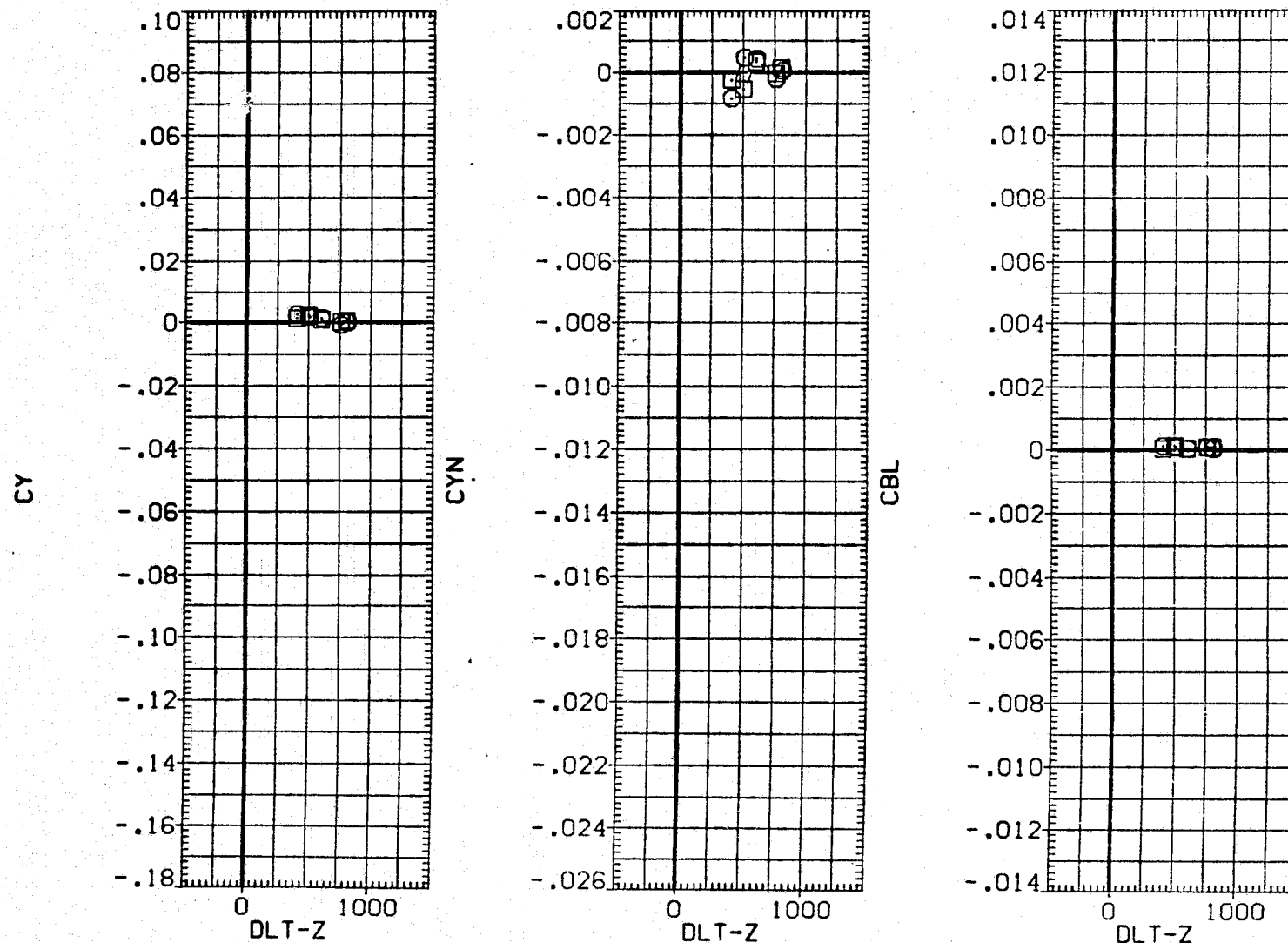


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93, AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO86)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.463	.000	ALPHA	.000
□	400.380	.000	DLTALF	-20.000
		.000	MACH	5.930
		15.000	ELEVON	.000
		13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

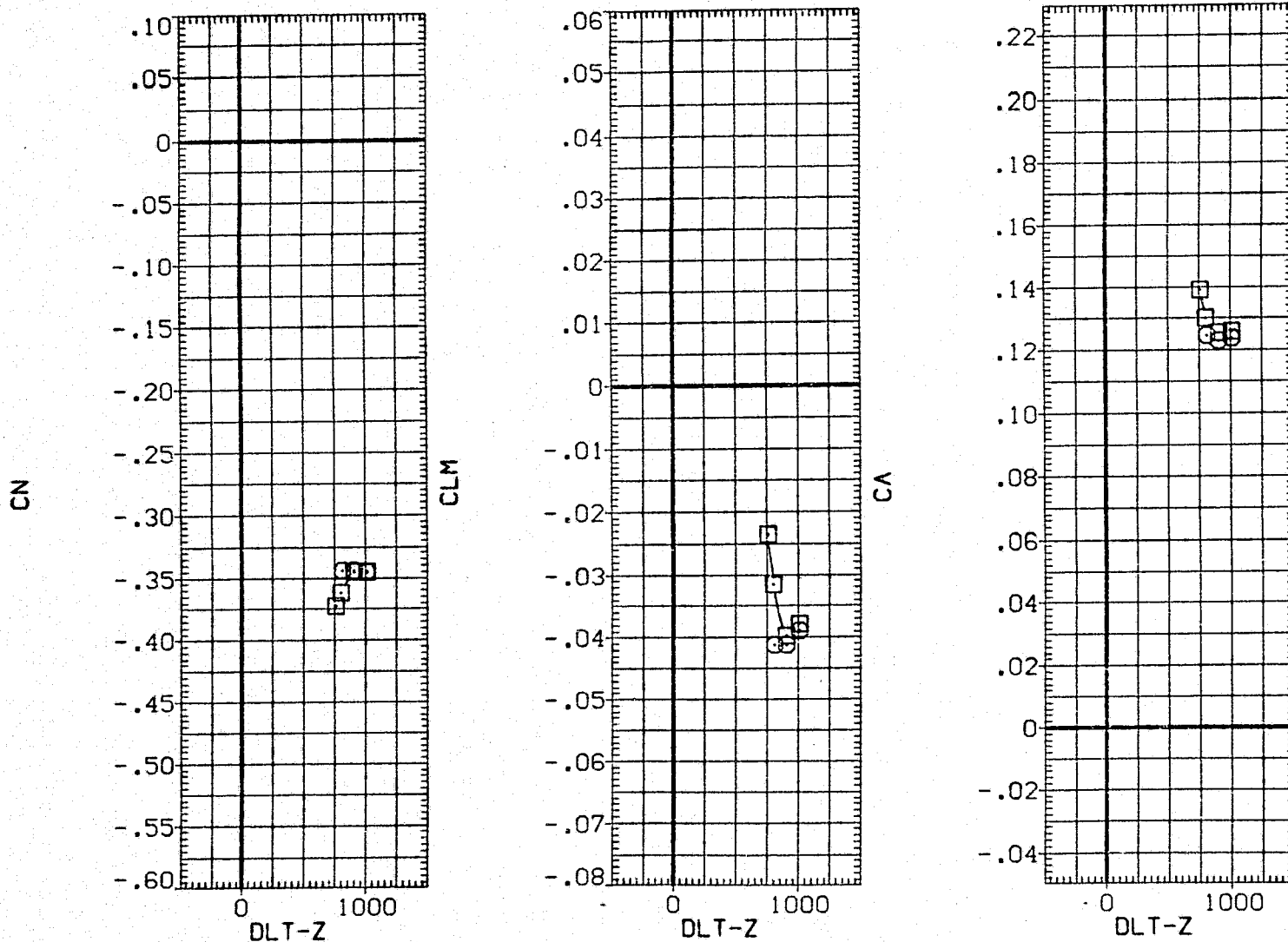


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO86)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.463	BETA	.000	ALPHA
□	400.380	DLTBTA	.000	DLTALF
		AILRON	15.000	MACH
		GRID	13.000	ELEVON
				.000
				-20.000
				5.930
				.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

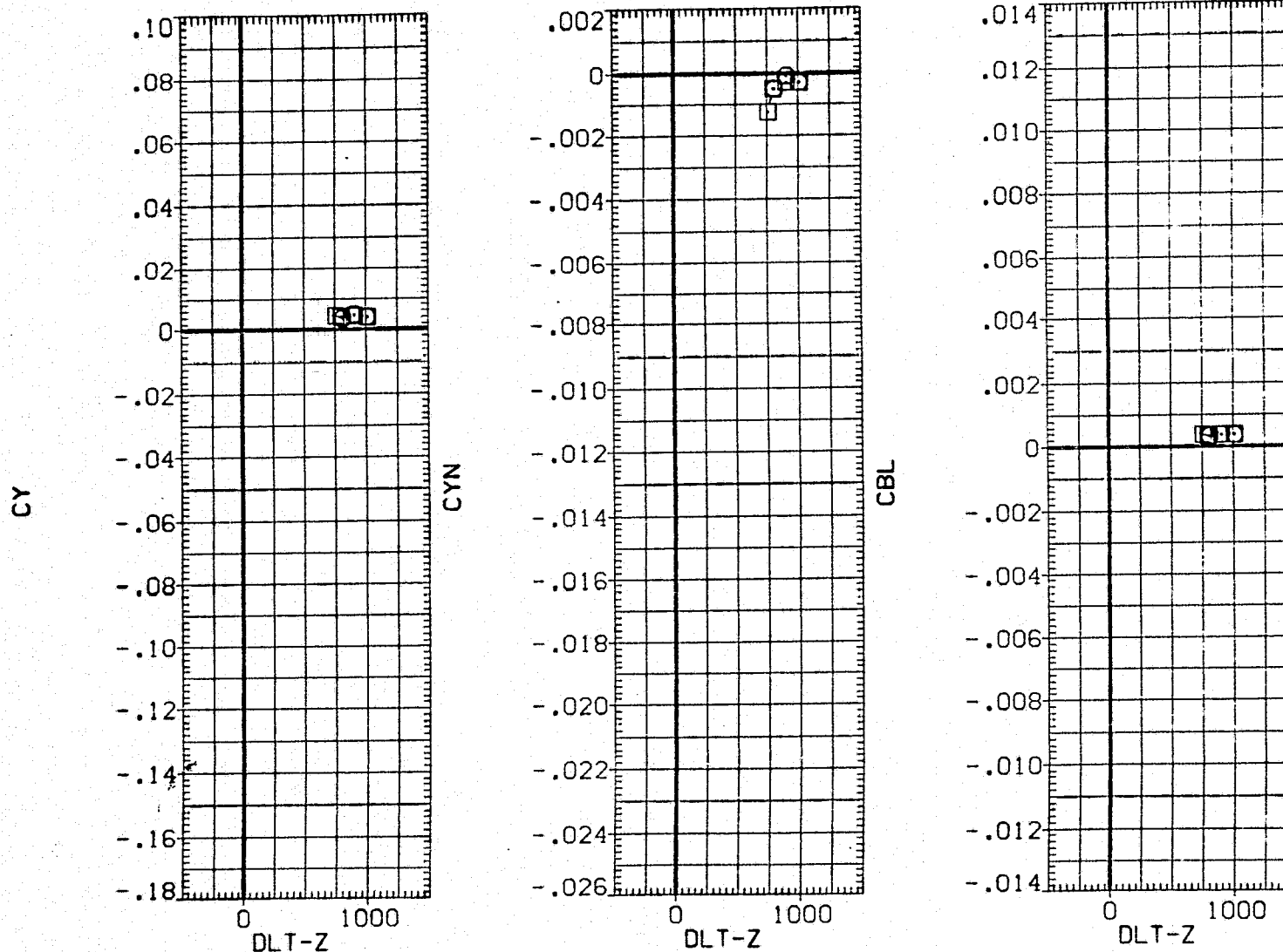


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO80)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.531	BETA	3.000	.000
		DLTBT	.000	.000
		AILRON	15.000	5.930
		GRID	14.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

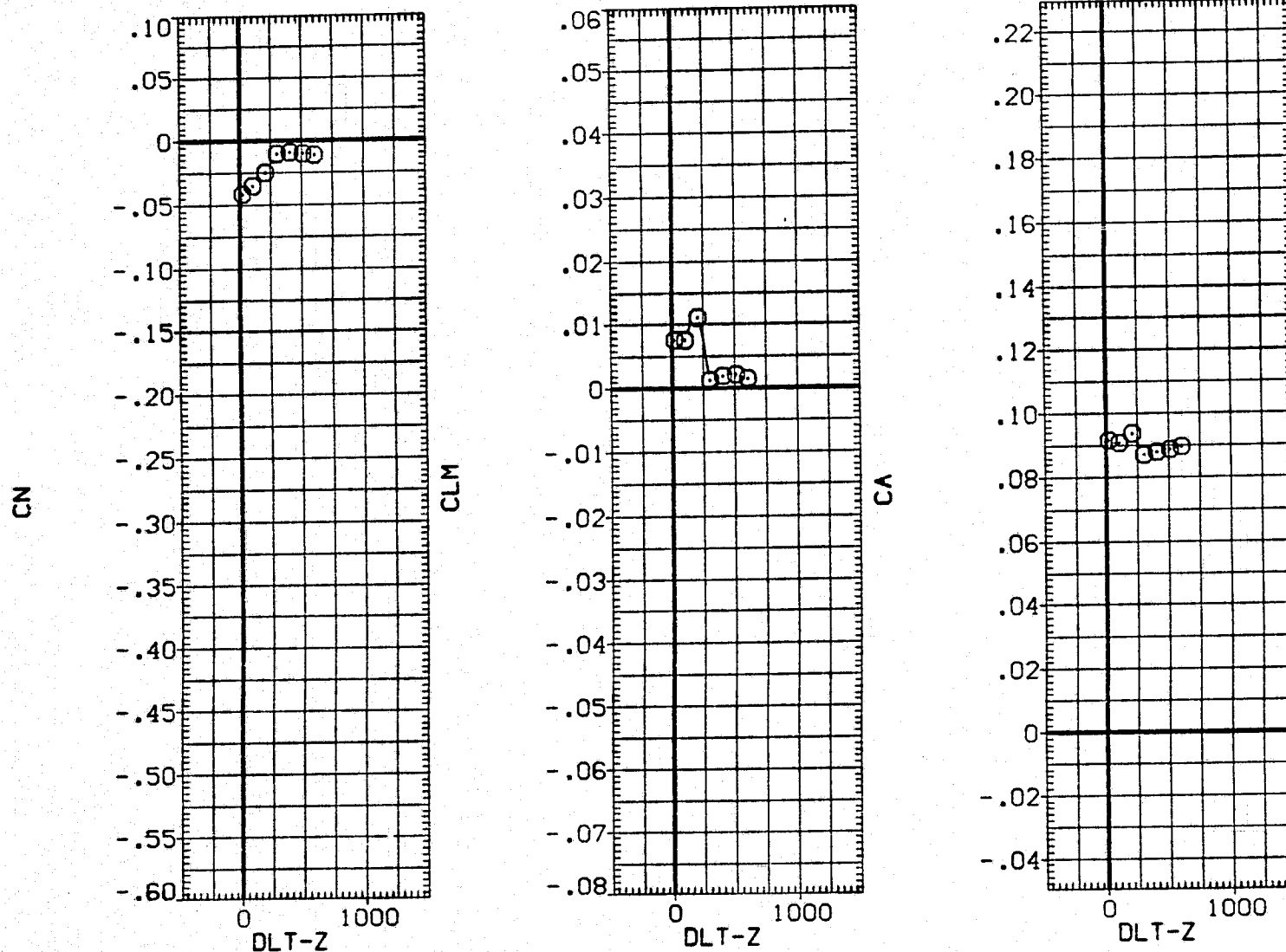


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO80)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.531	BETA	.000	.000
		DLTBT	3.000	.000
		DLTBT	.000	5.930
		AILRON	15.000	.000
		GRID	14.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRF	1360.1000 IN. XT
YMRF	.0000 IN. YT
ZMRF	416.4000 IN. ZT
SCALE	.0100

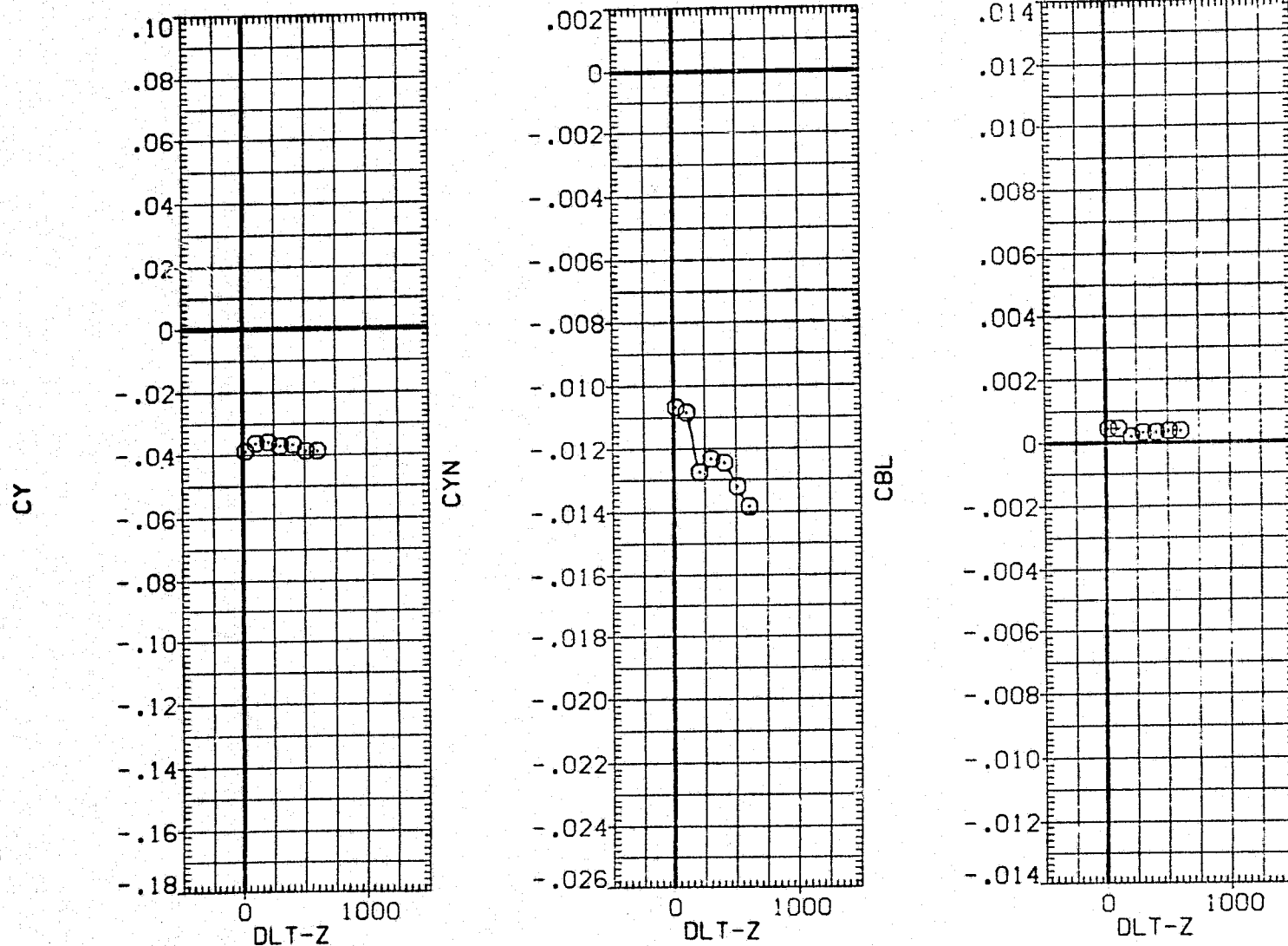


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO81)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
O	.562	.000	BETA	3.000	-10.000
		.000	DLTBTA	.000	5.930
		15.000	AILRON	.000	
		14.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

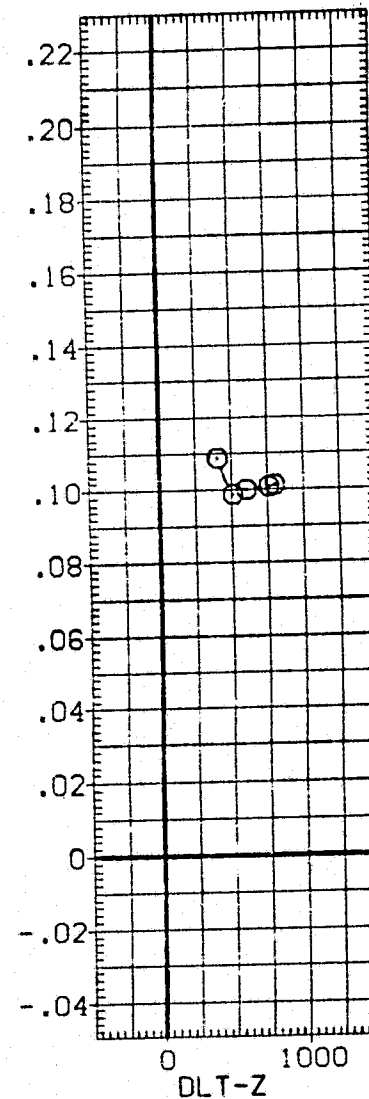
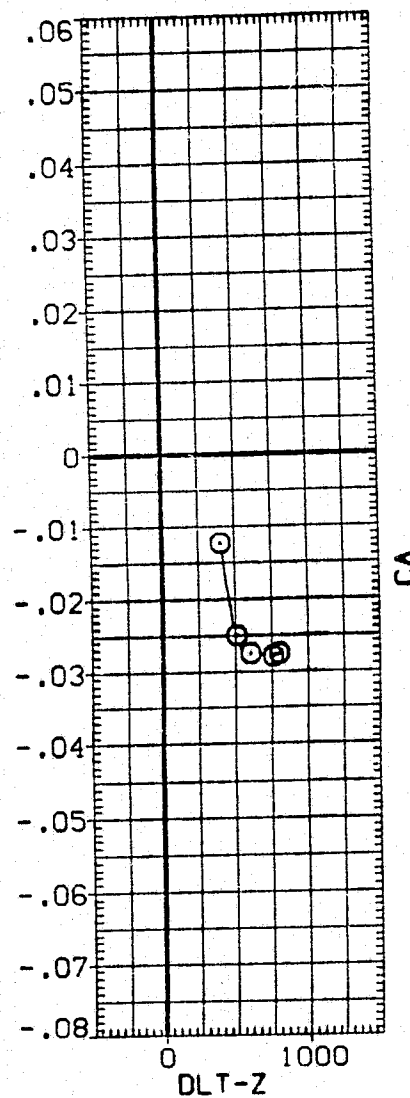
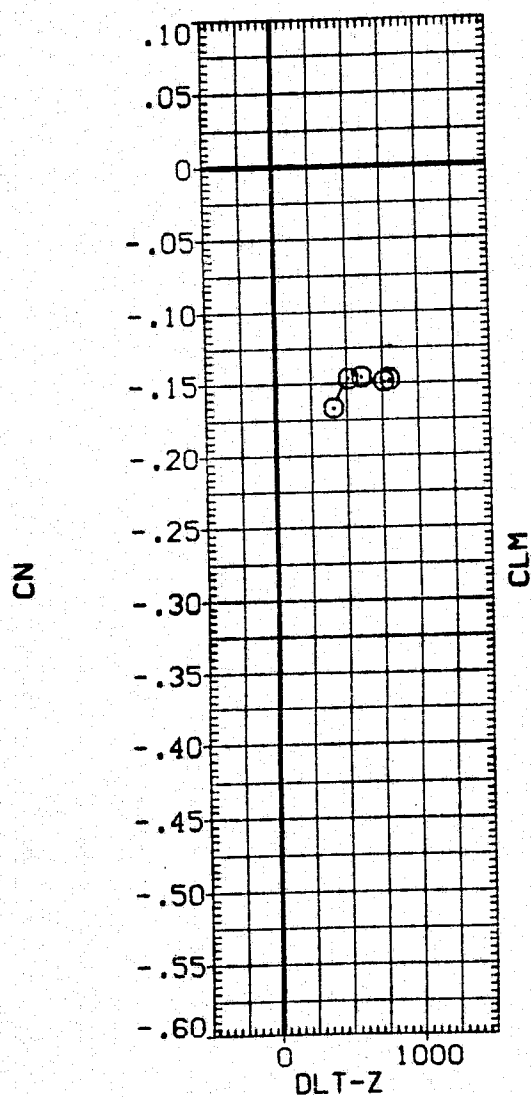


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO81)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	ALPHA	DLTALF	
○	.562	BETA	3.000	-10.000	
		DLTBT	.000	MACH	5.930
		AILRON	15.000	ELEVON	.000
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

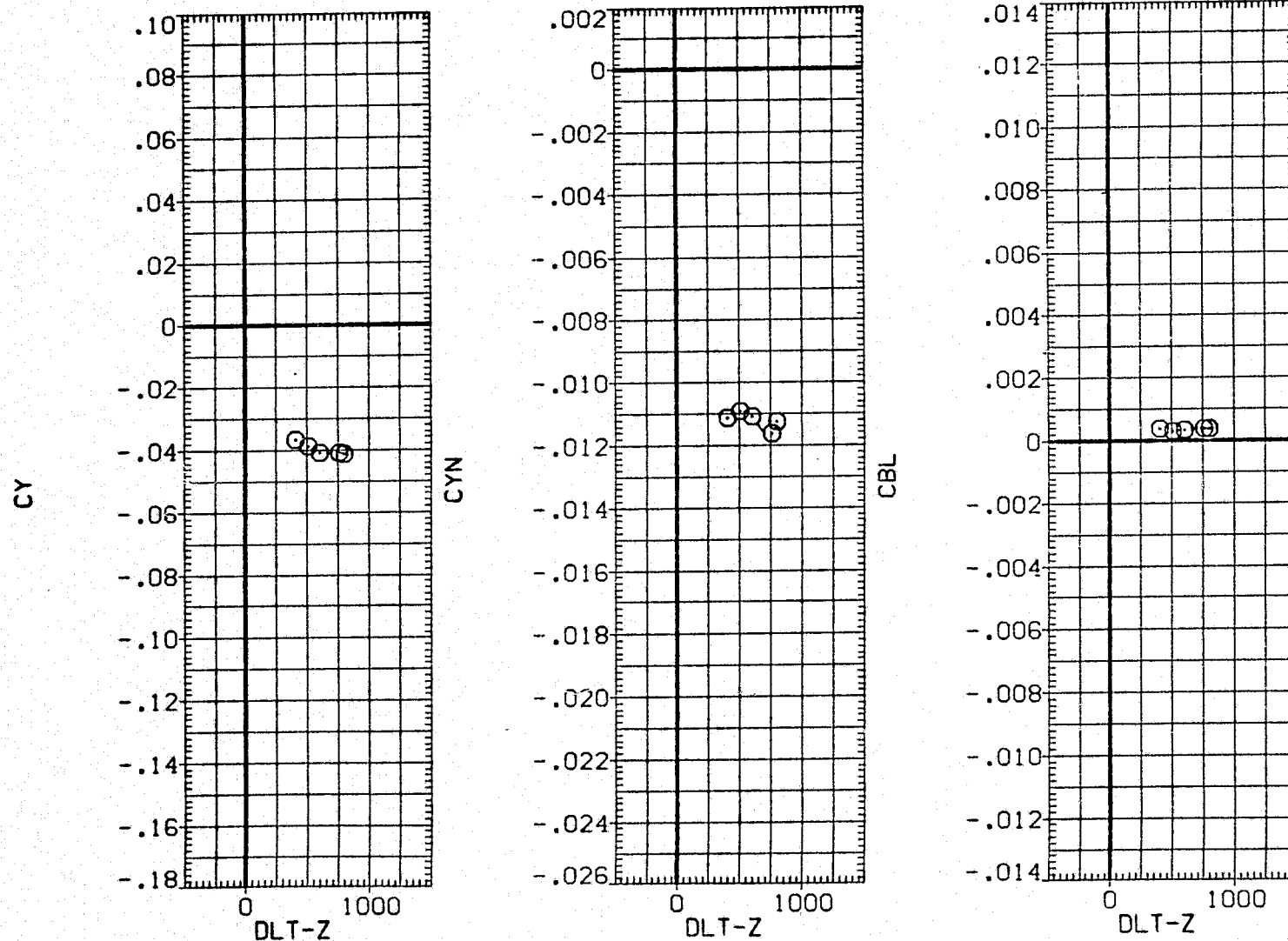


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO82)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.514	BETA	.000	.000
		DLTBTA	3.000	DLTALF -20.000
		AILRON	.000	MACH 5.930
		GRID	15.000	ELEVON .000
			14.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1790.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

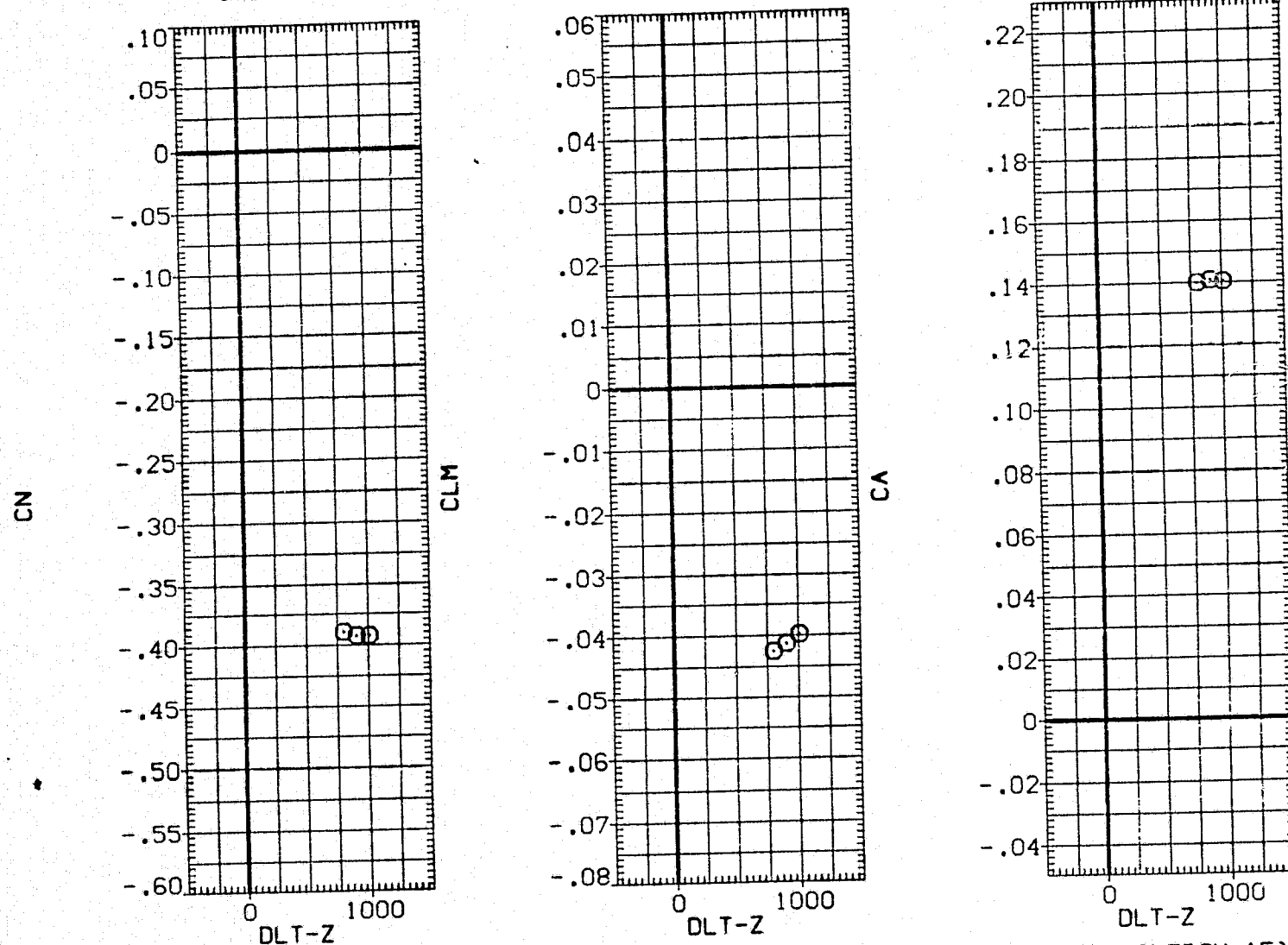


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO82)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.514	BETA	.000	.000	
		DLTBTA	3.000	DLTALF	-20.000
		AILRON	.000	MACH	5.930
		GRID	15.000	ELEVON	.000
			14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

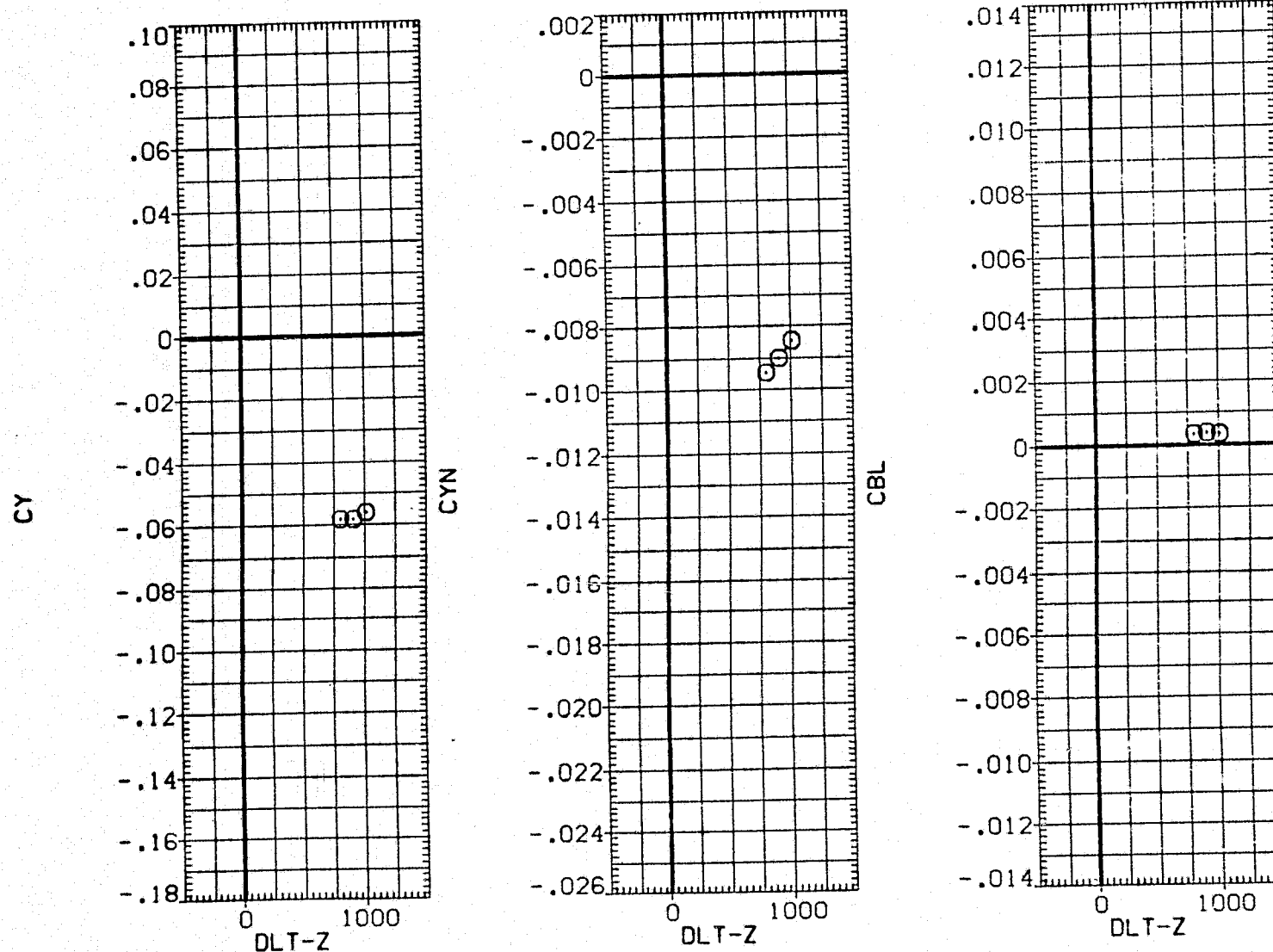


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO87)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA		
○	.550	.000	.000	5.000		
□	400.510	BETA	.000	DLTALF	.000	
		DLTBTA	.000	MACH	5.930	
		AILRON	15.000	ELEVON	.000	
		GRID	12.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. XT
ZMRP	416.4000	IN. YT
SCALE	.0100	

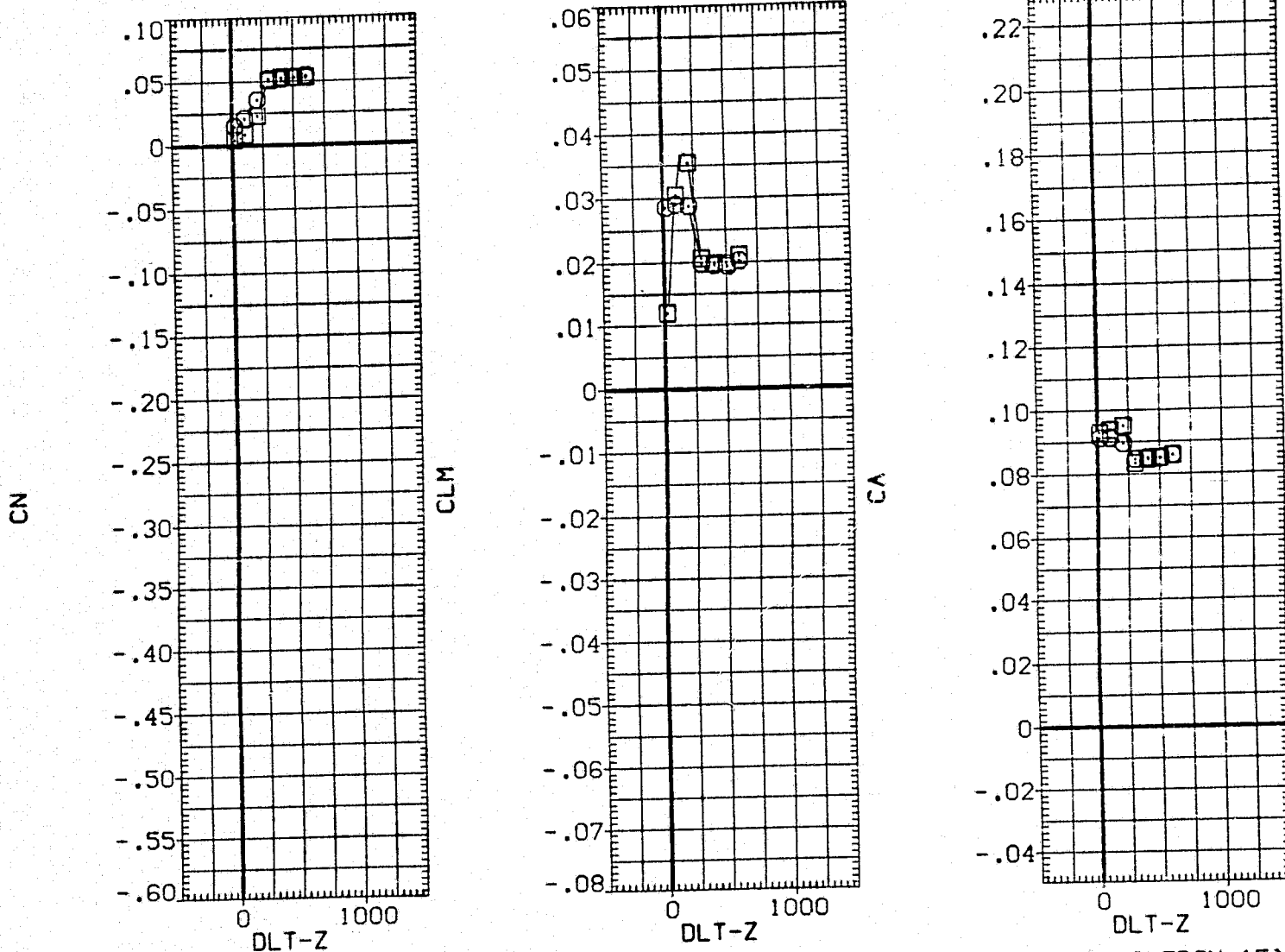


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO87)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.550		.000	.000	5.000	
□	400.510		.000	.000	5.930	
		DLTBT	.000			
		AILRON	15.000			
		GRID	12.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

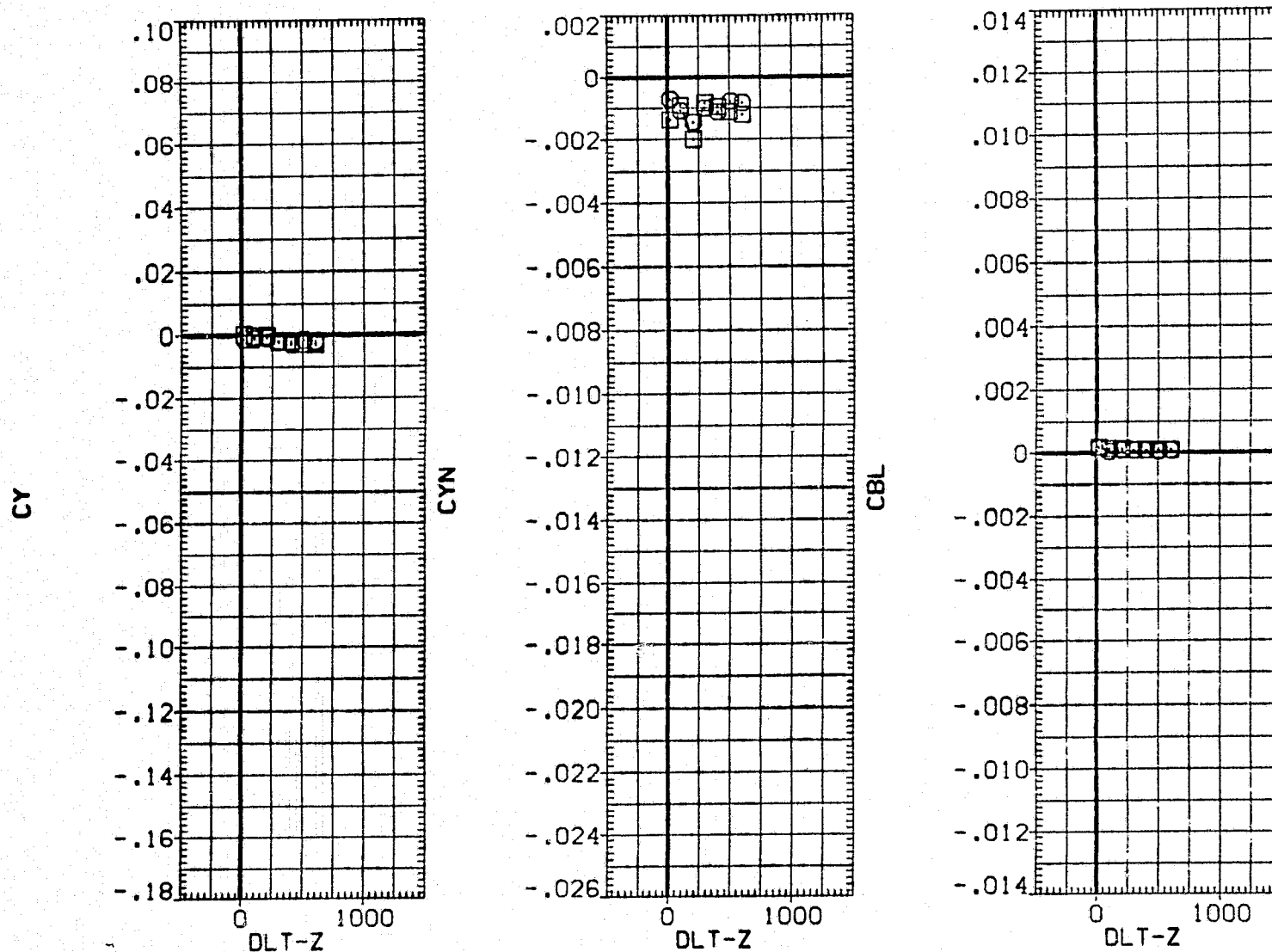


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO88)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.464	.000		5.000
□	400.440	.000	DLTALF	-10.000
		.000	MACH	5.930
		15.000	ELEVON	.000
		12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

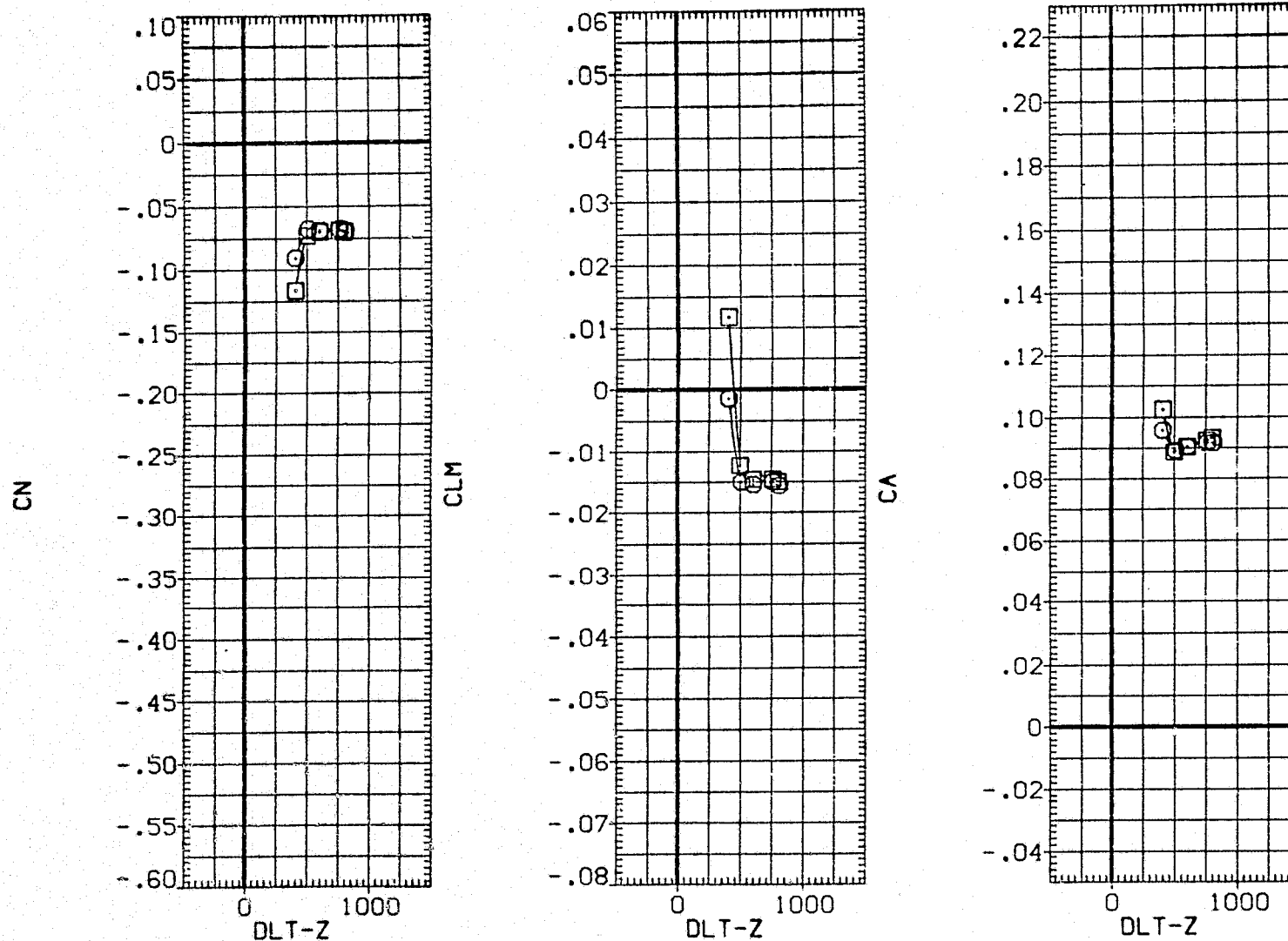


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATRO88)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	DLT-Y	BETA	DLTSTA	AILRON	GRID
○	.464	.000	.000	15.000	12.000
□	400.440	.000	.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

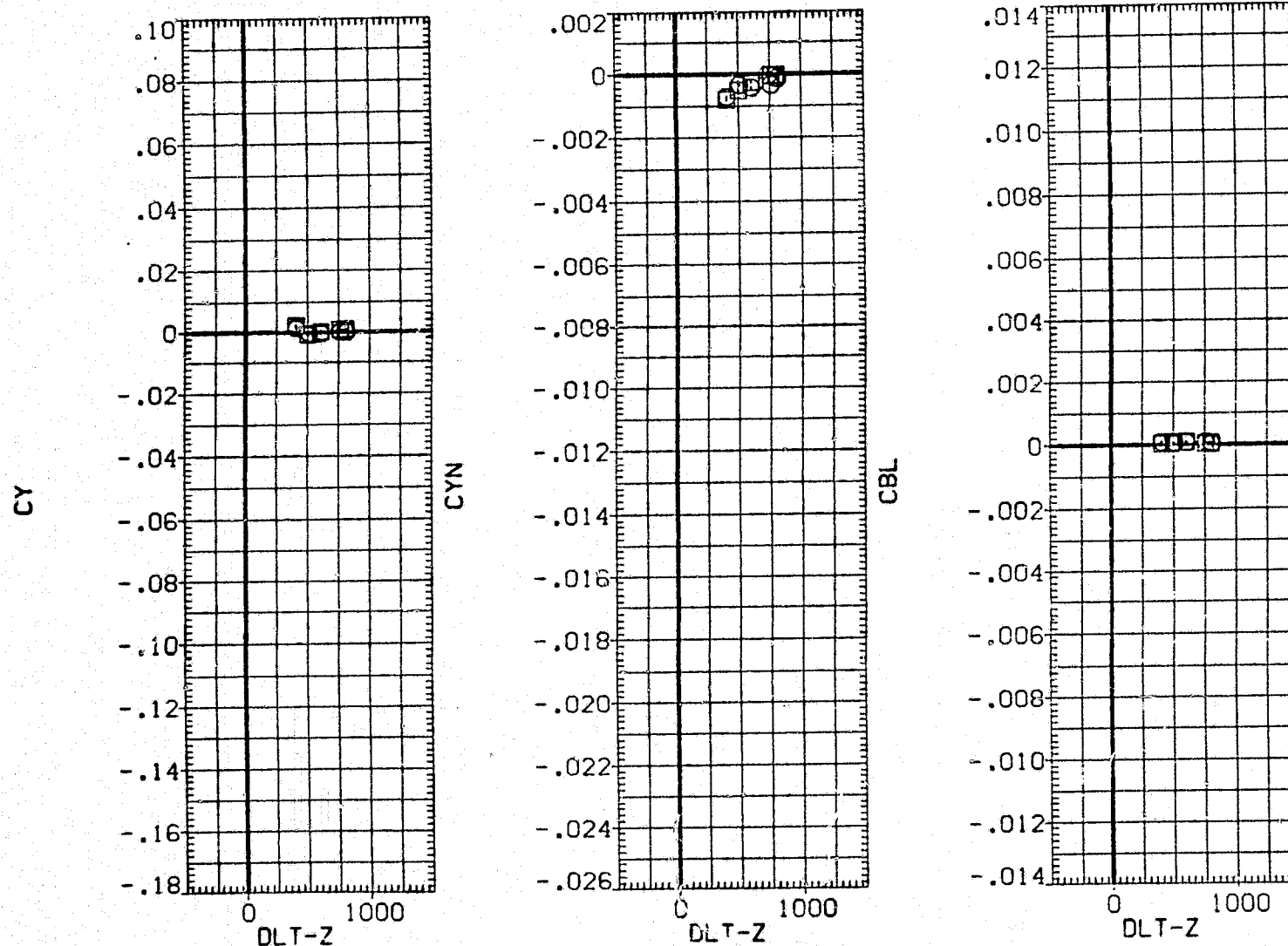


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO90)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
○	.340	.000	ALPHA	5.000	-20.000
□	400.490	.000	BETA	.000	5.930
		.000	DLTBTA	.000	.000
		15.000	AILRON	15.000	
		12.000	GRID	12.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

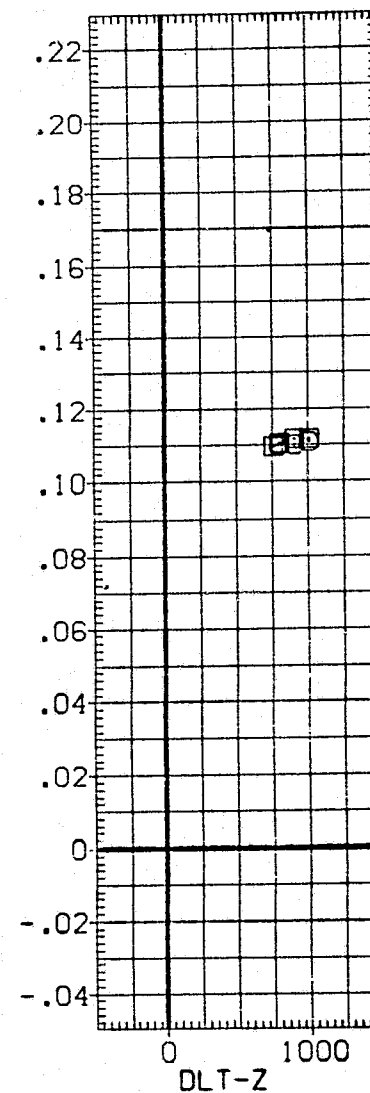
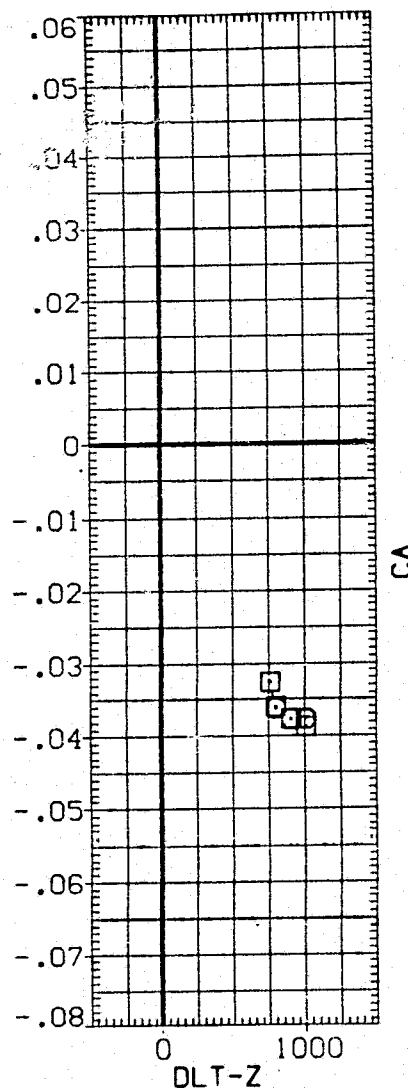
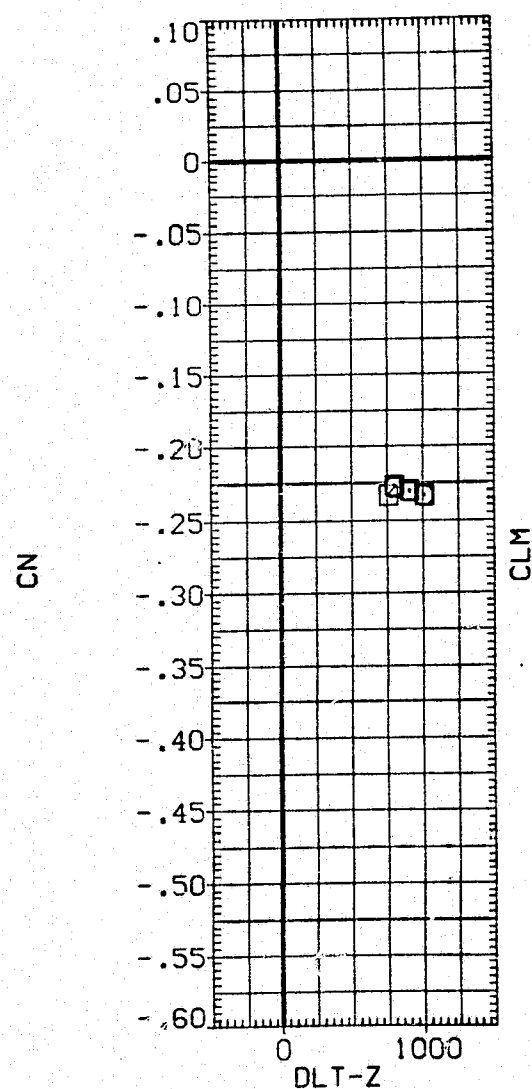


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO90)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.340	.000	ALPHA	5.000
□	400.490	.000	DLTALF	-20.000
		.000	MACH	5.930
		15.000	ELEVON	.000
		12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

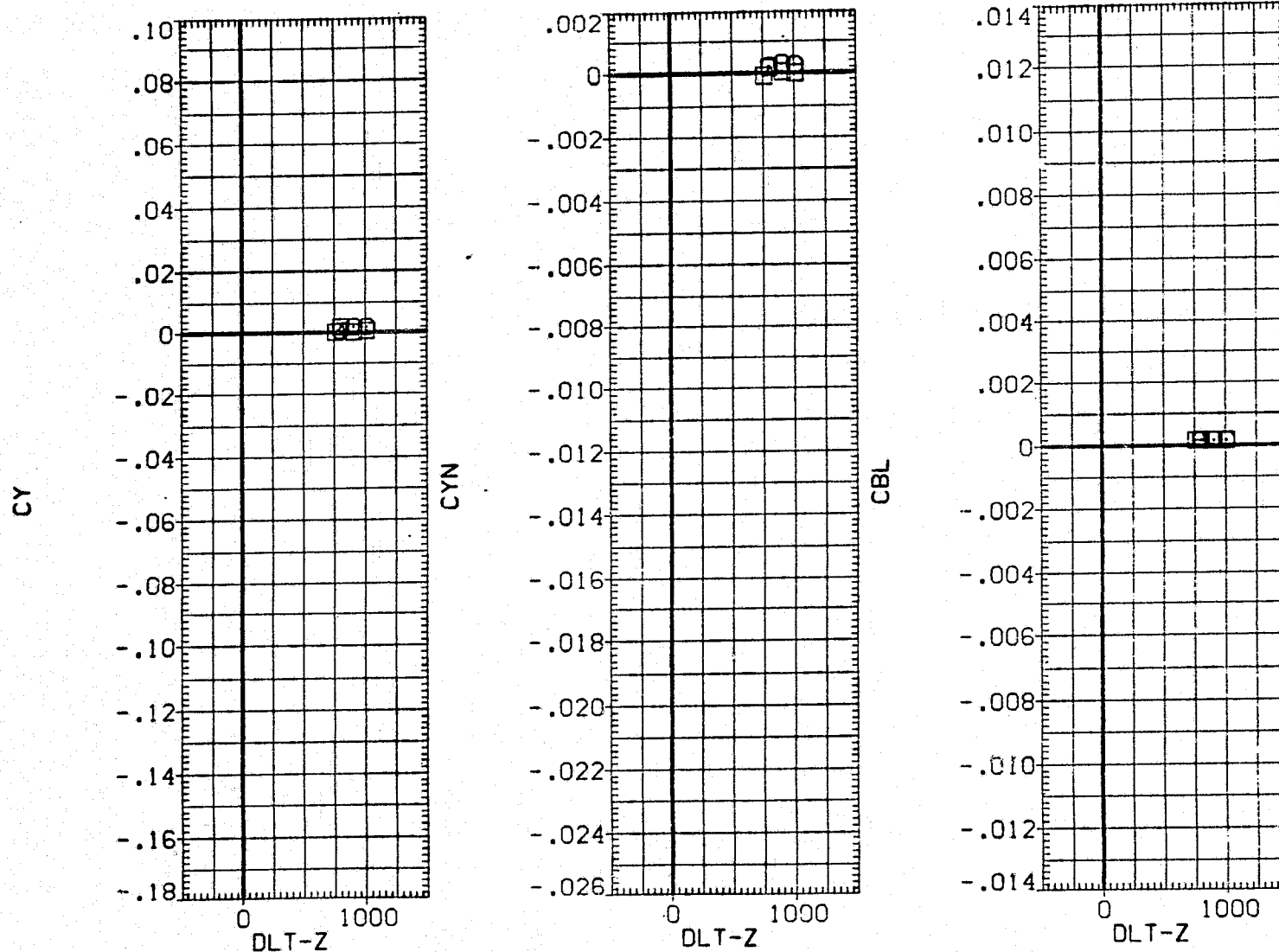


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO91)

SYMBOL		DLT-X	PARAMETRIC VALUES			
○		.536	DLT-Y	.000	ALPHA	-5.000
□		400.360	BETA	.000	DLTALF	.000
			DLTSTA	.000	MACH	5.930
			AILRON	15.000	ELEVON	.000
			GRID	11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

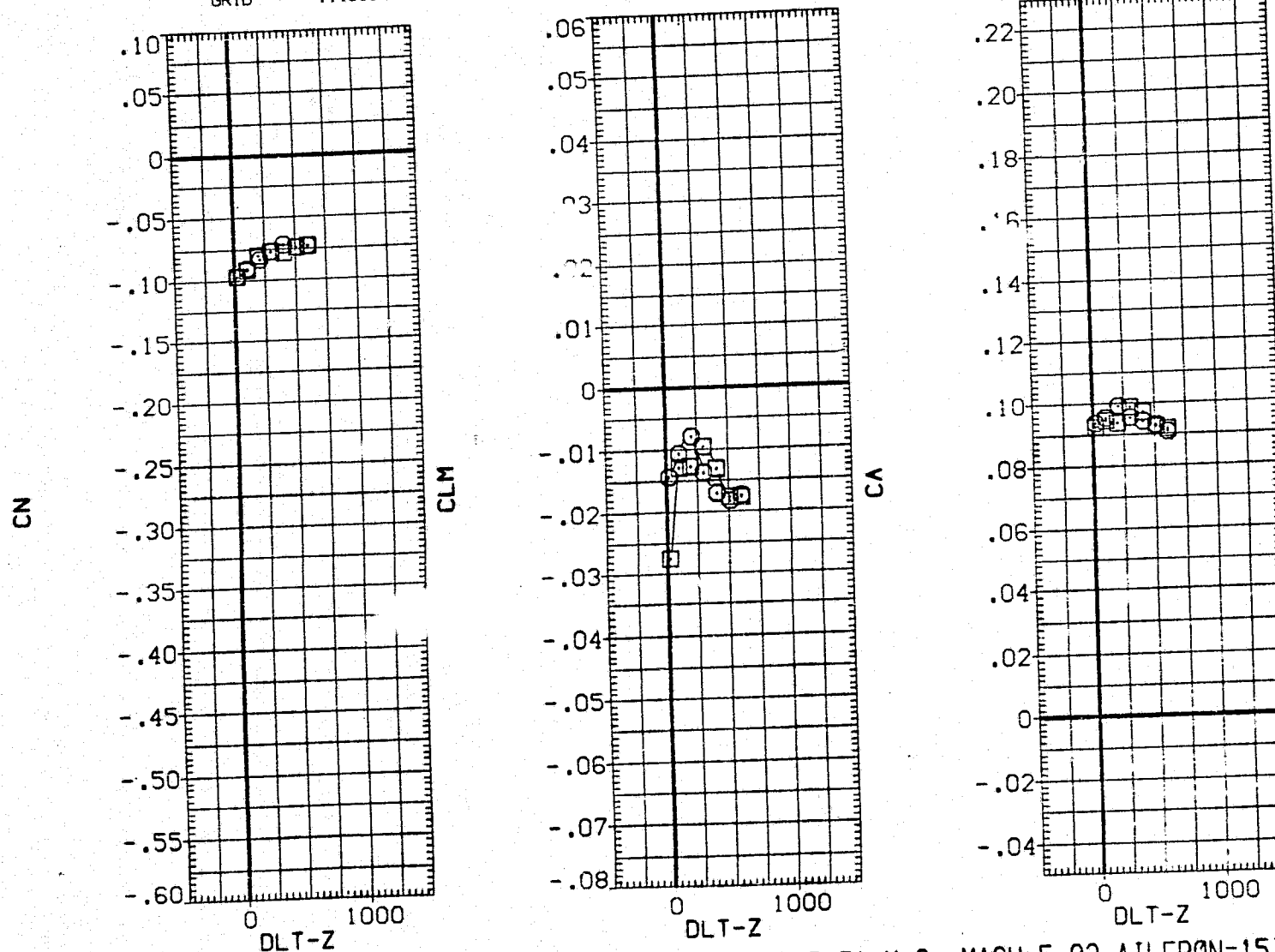


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO91)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.536	.000		-5.000	
□	400.360	.000		.000	
		DLTBT		MACH	5.930
		AILRON	15.000	ELEVON	.000
		GRID	11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

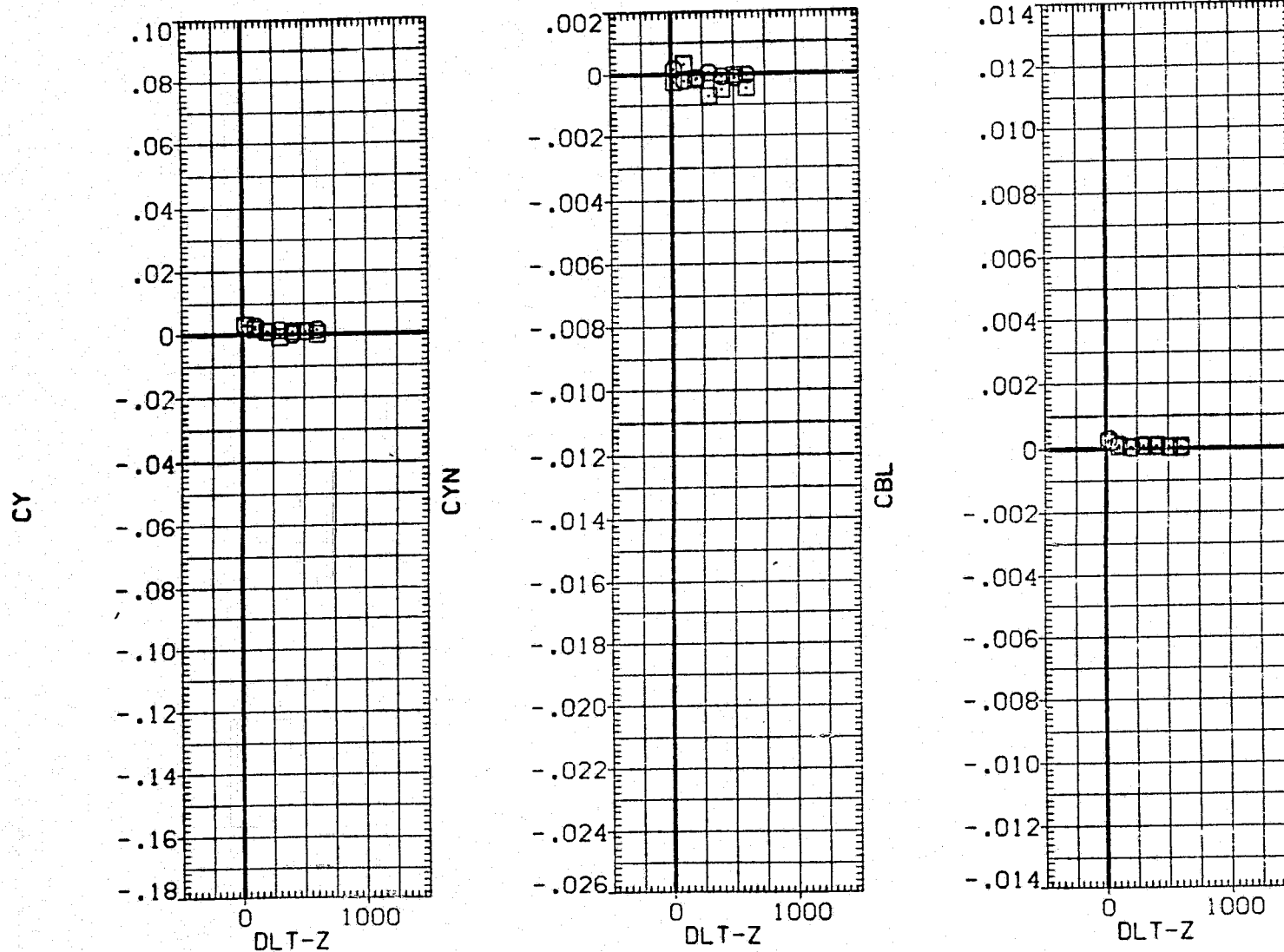


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO92)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.401	.000	DLTALF	-5.000
□	400.440	.000	MACH	-10.000
		.000	ELEVON	5.930
		15.000		.000
		11.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

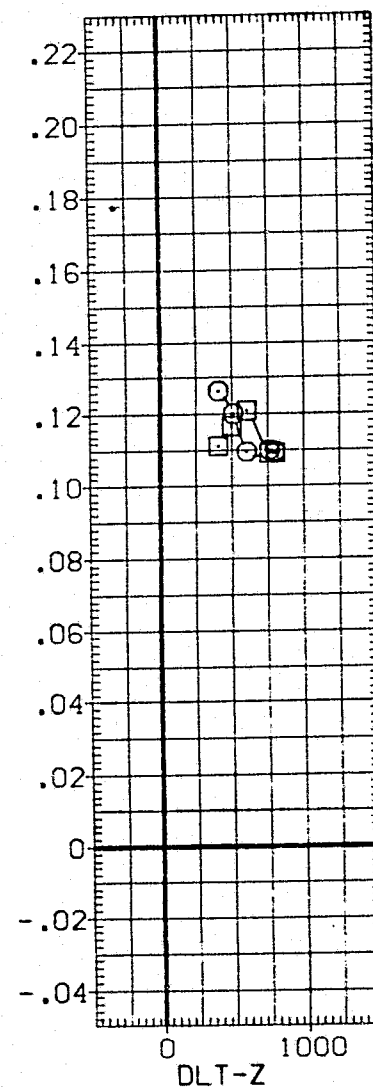
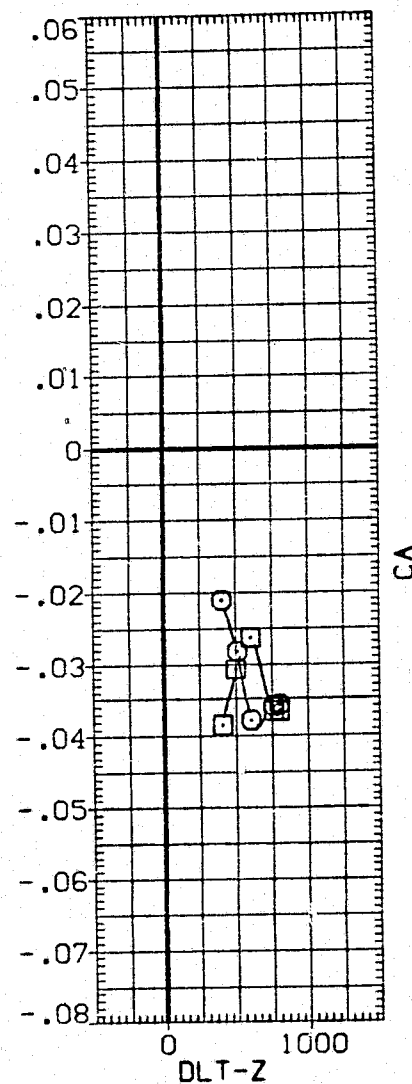
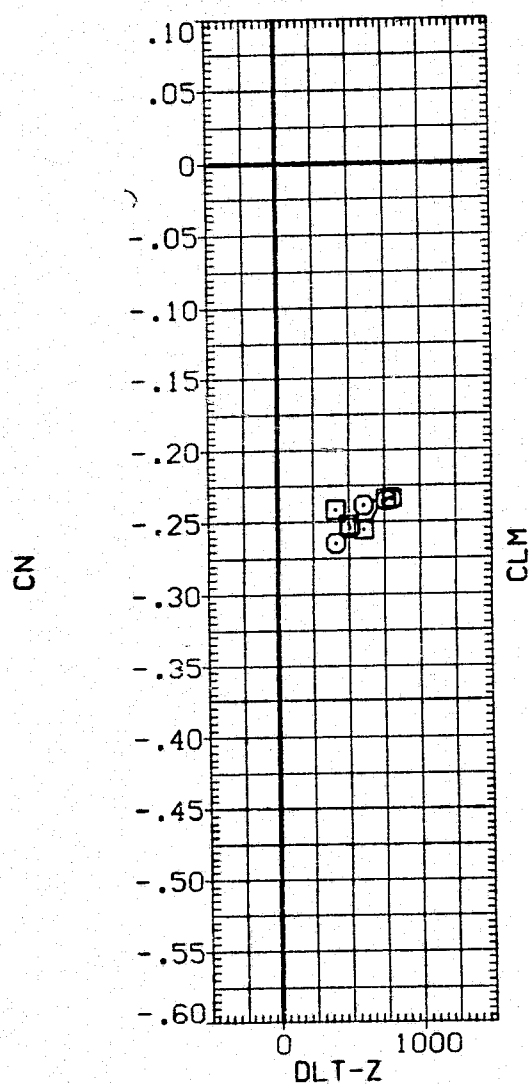


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (AT092)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.401	.000	ALPHA	-5.000
□	400.440	.000	DLTALF	-10.000
		.000	MACH	5.930
		15.000	ELEVON	.000
		11.000		

REFERENCE INFORMATION		
SREF	2590.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

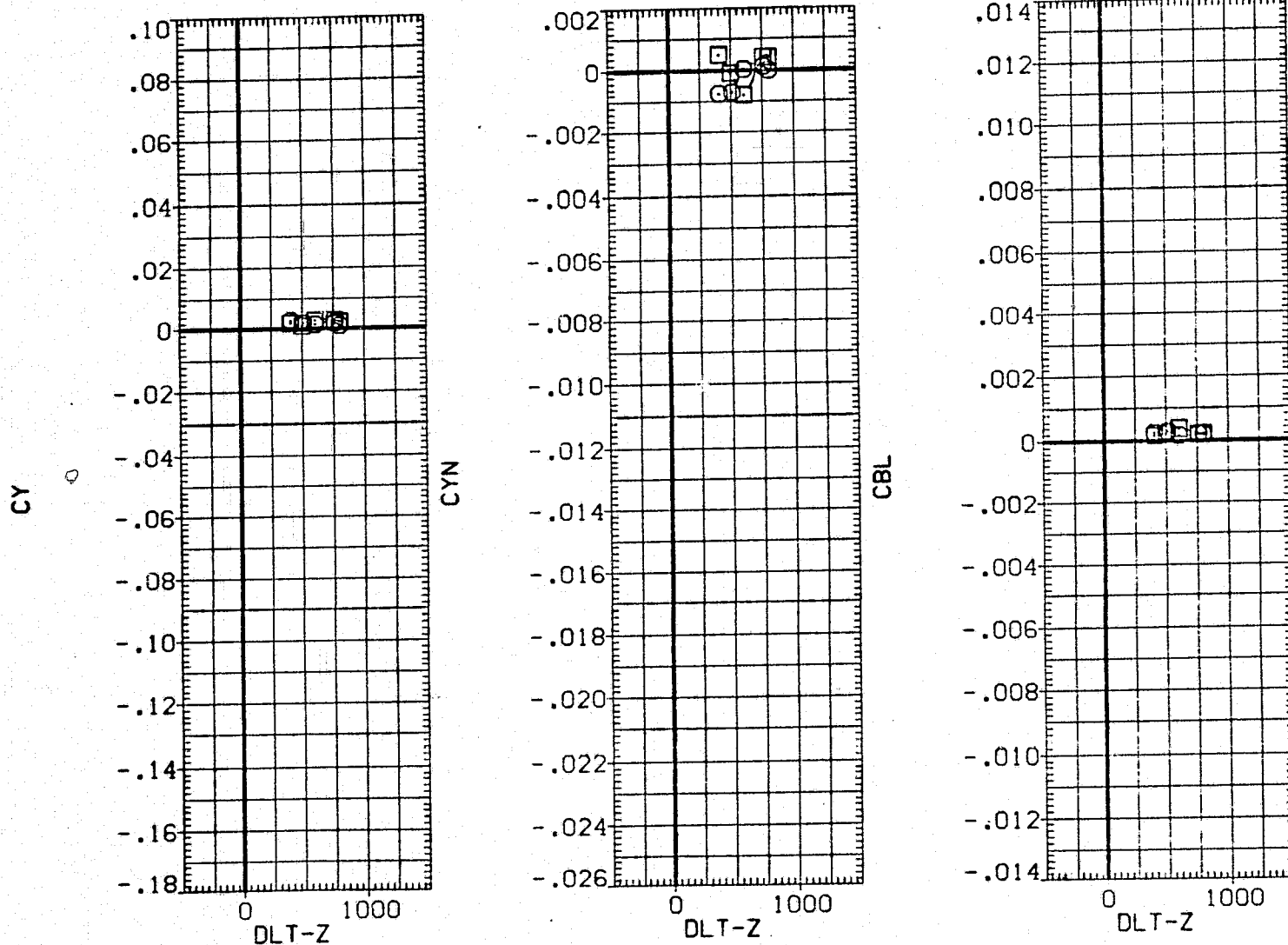


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO94)

SYMBOL

○
□

DLT-X
.512
400.560

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES

ALPHA
DLTALF
MACH
ELEVON

-5.000
-20.000
5.930
.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

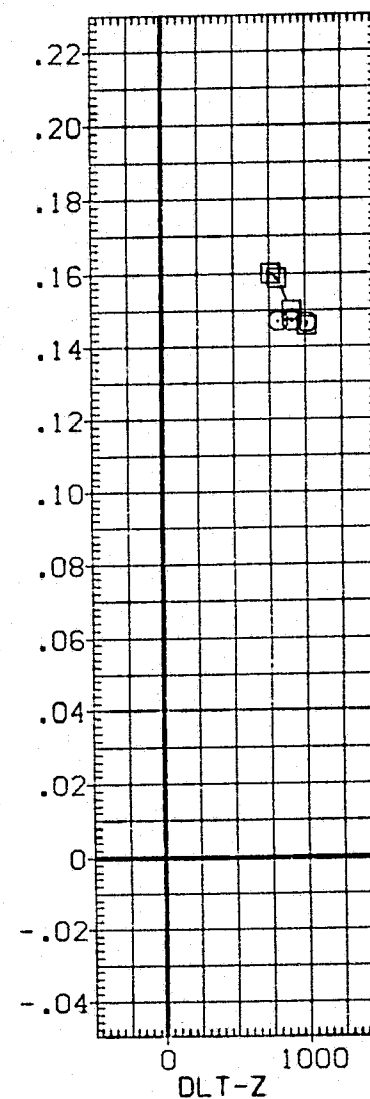
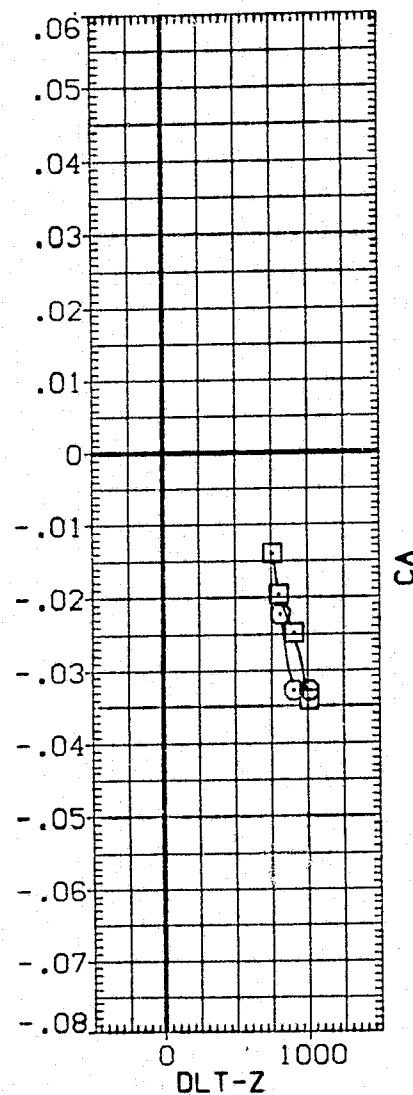
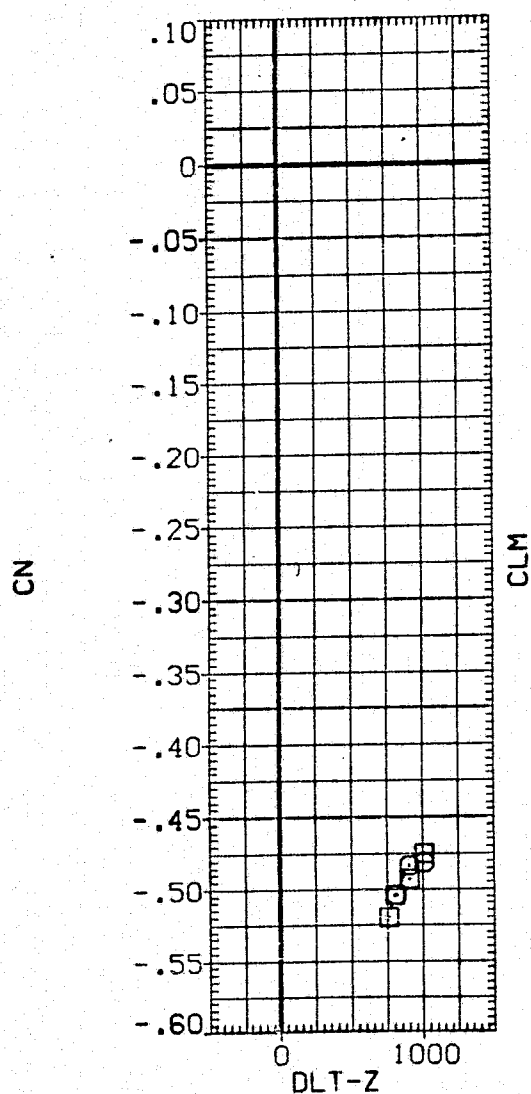


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILRON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO94)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	-5.000
○	.512	.000	BETA	.000	DLTALF
□	400.560	.000	DLTBTA	.000	MACH
		.000	AILRON	15.000	ELEVON
		.000	GRID	11.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

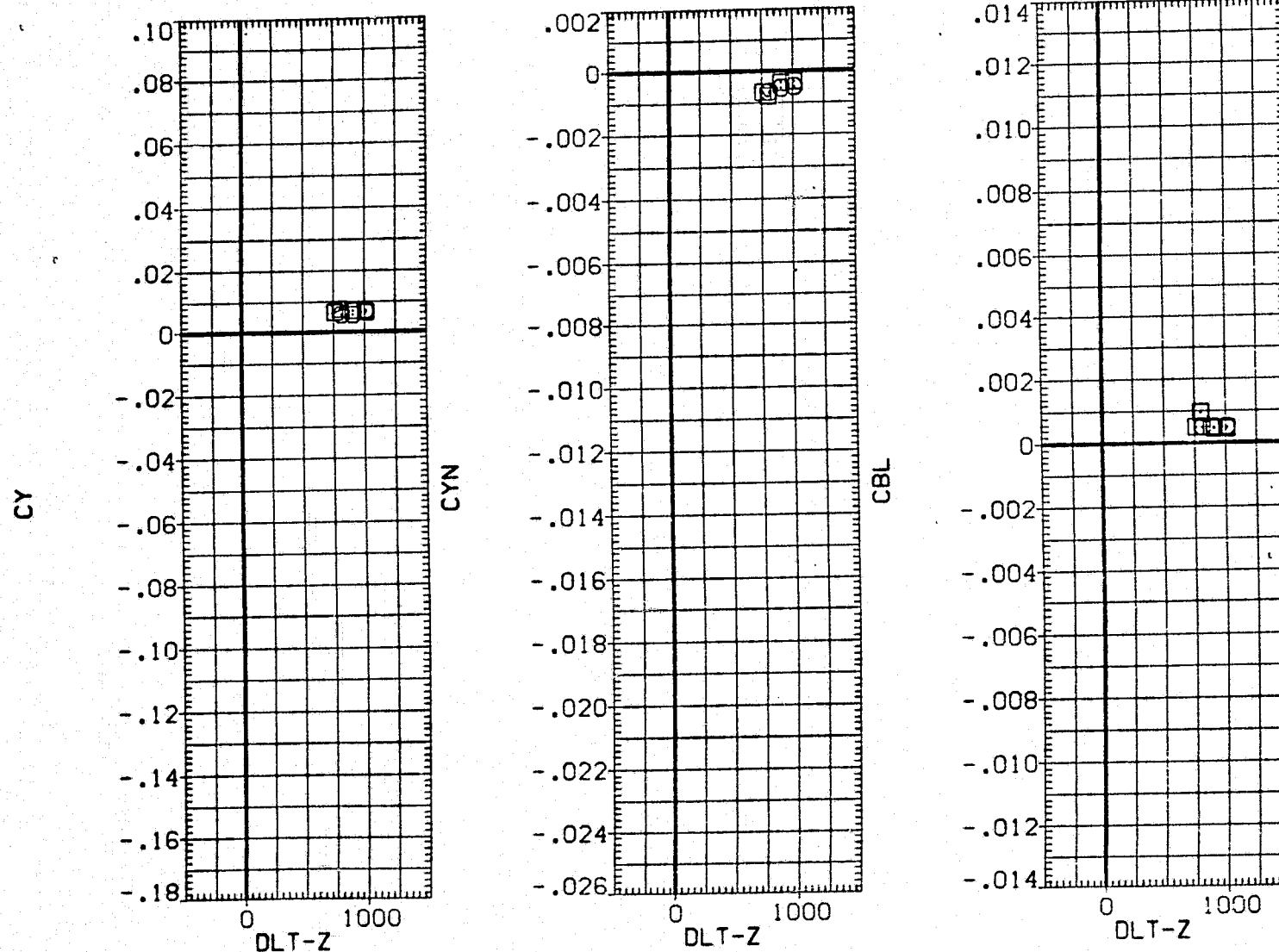


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO95)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.495	BETA	.000	DLTALF	-10.000
□	400.410	DLT8TA	.000	MACH	.000
		AILRON	15.000	ELEVON	5.930
		GRID	10.000		.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

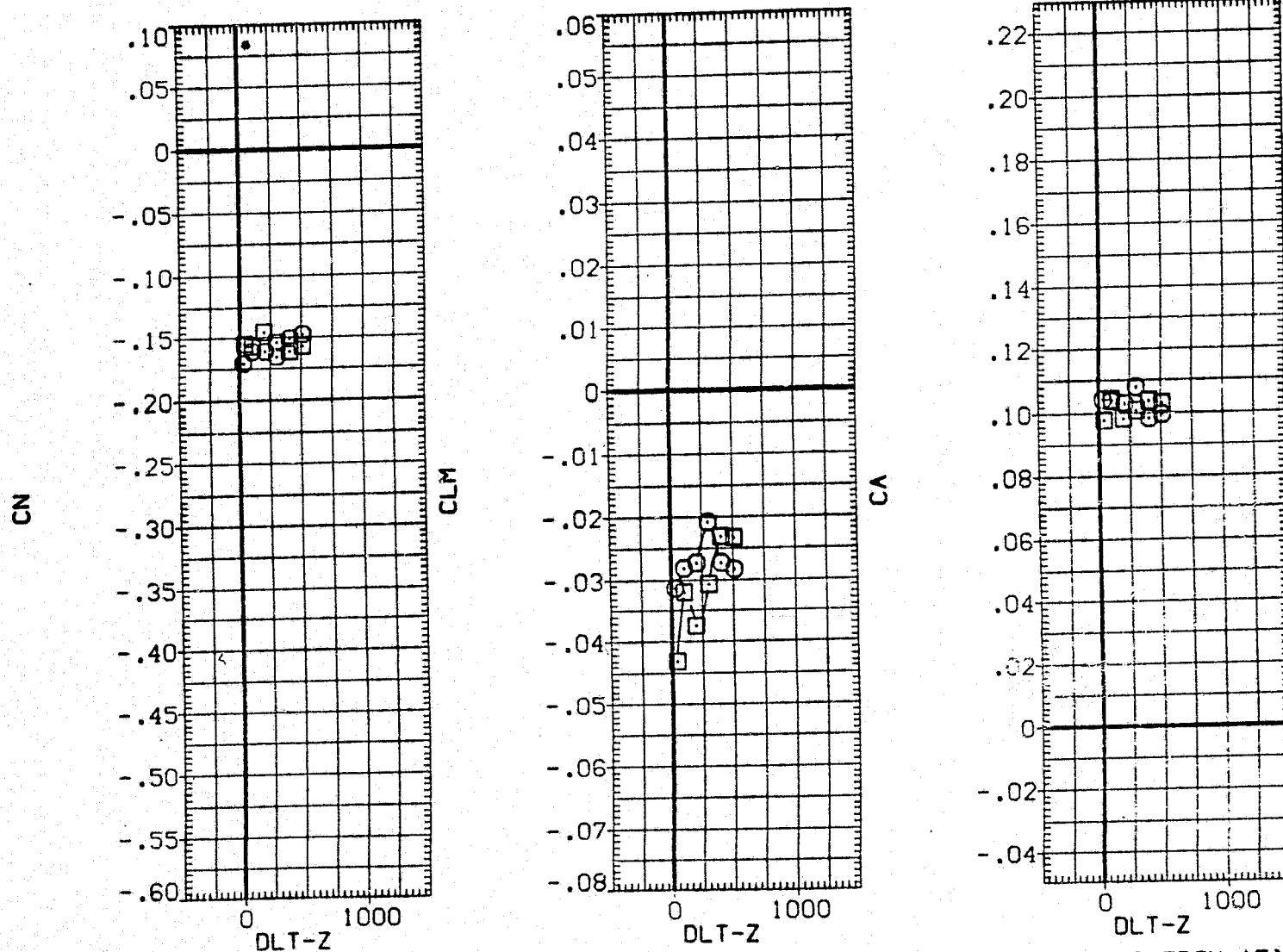


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO95)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.495	.000	ALPHA	-10.000
□	400.410	.000	DLTALF	.000
		.000	MACH	5.930
		15.000	ELEVON	.000
		10.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

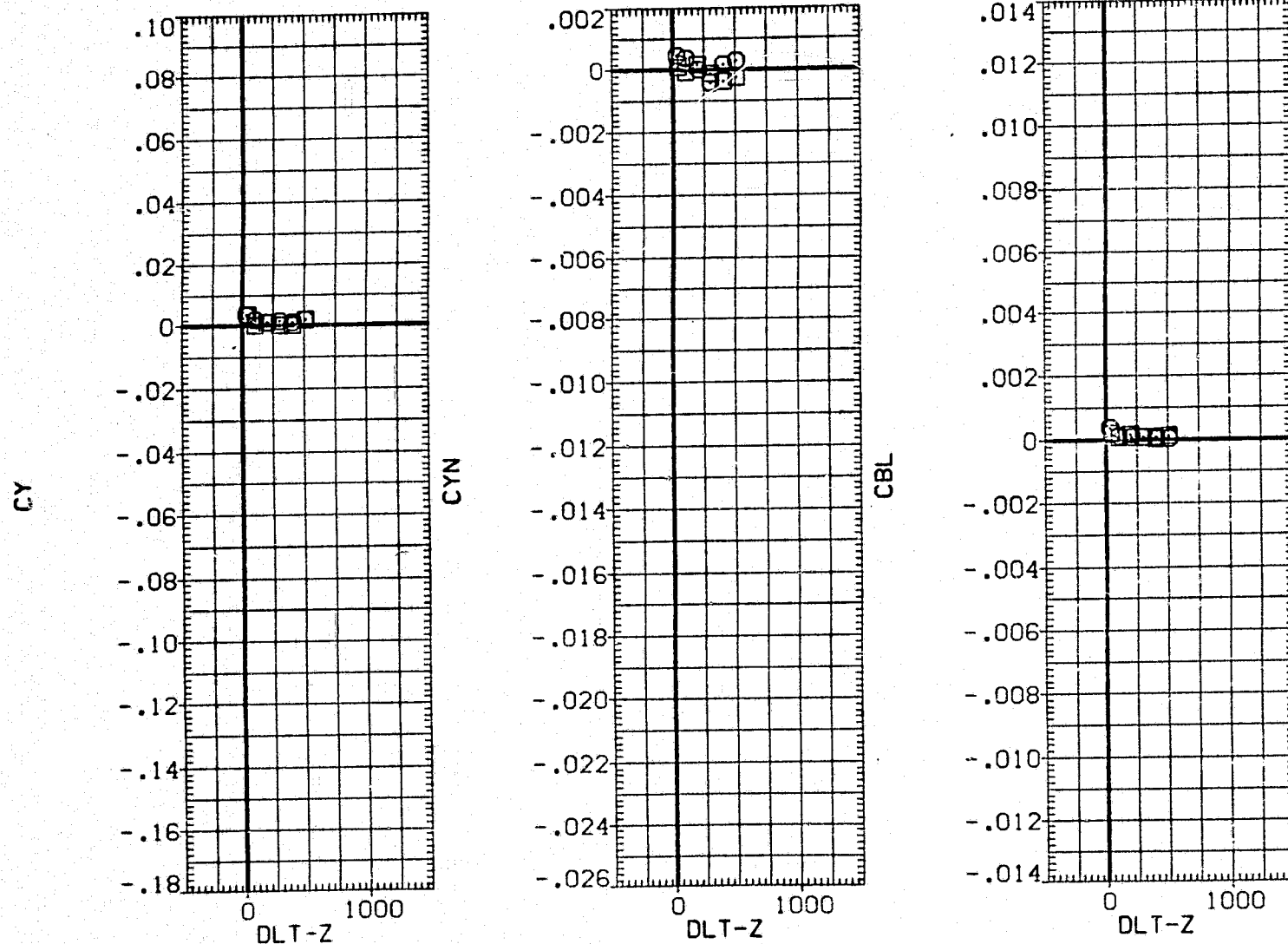


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO96)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.510	.000		-10.000
□	400.470	.000	DLTALF	-10.000
		.000	MACH	5.930
		.000	ELEVON	.000
		15.000		
		10.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

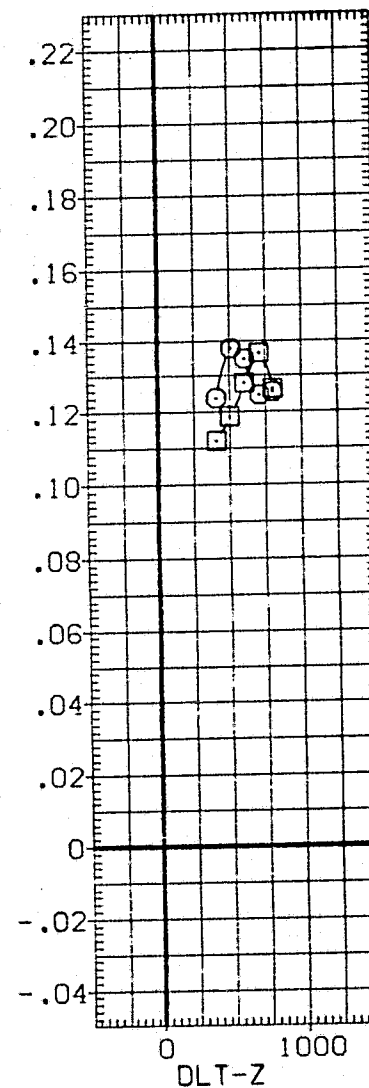
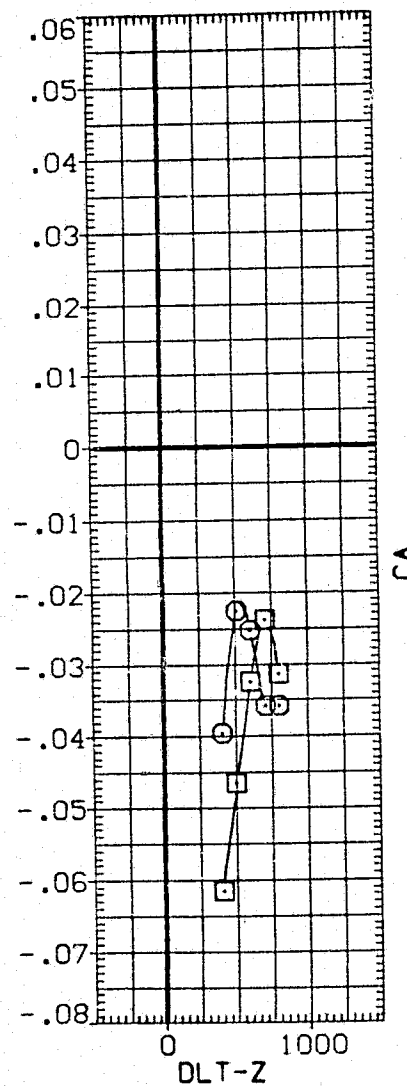
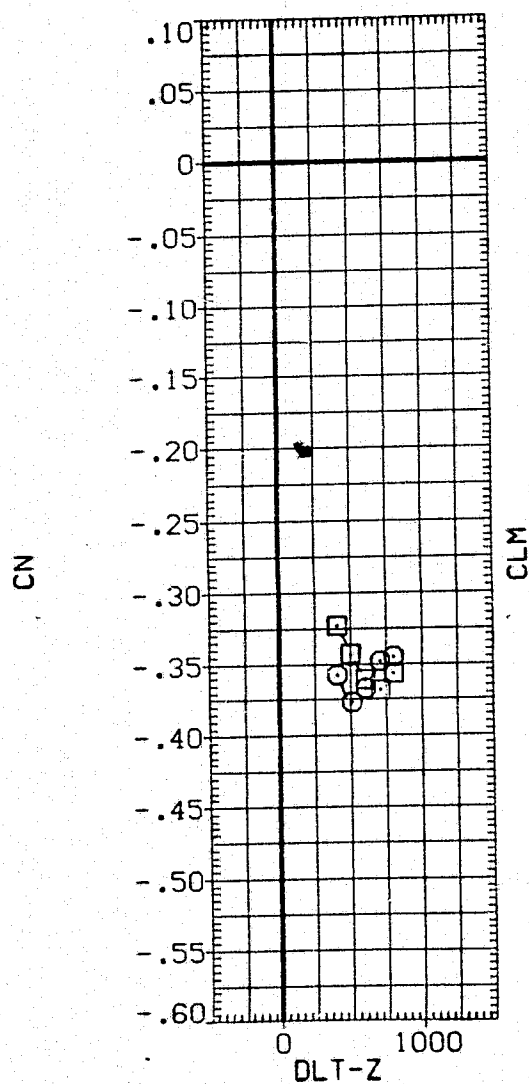


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATRO96)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.510	.000	-10.000	-10.000
□	400.470	.000	5.930	.000
		15.000		
		10.000		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

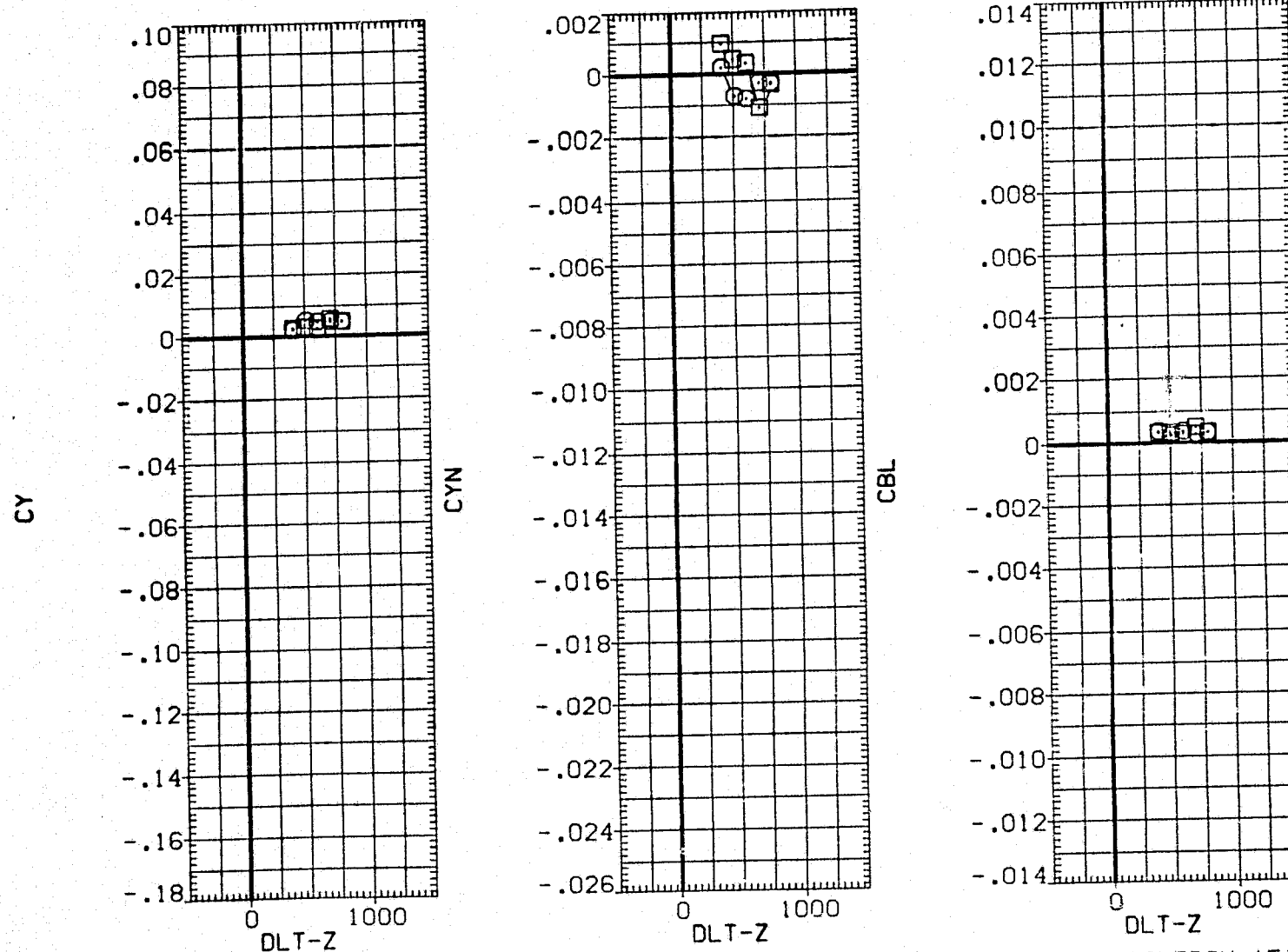


FIGURE 27 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=5.93,AILERON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR122)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.435	.000	ALPHA	.000
□	200.390	.000	DLTALF	.000
		.000	MACH	7.980
		.000	ELEVON	.000
		16.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

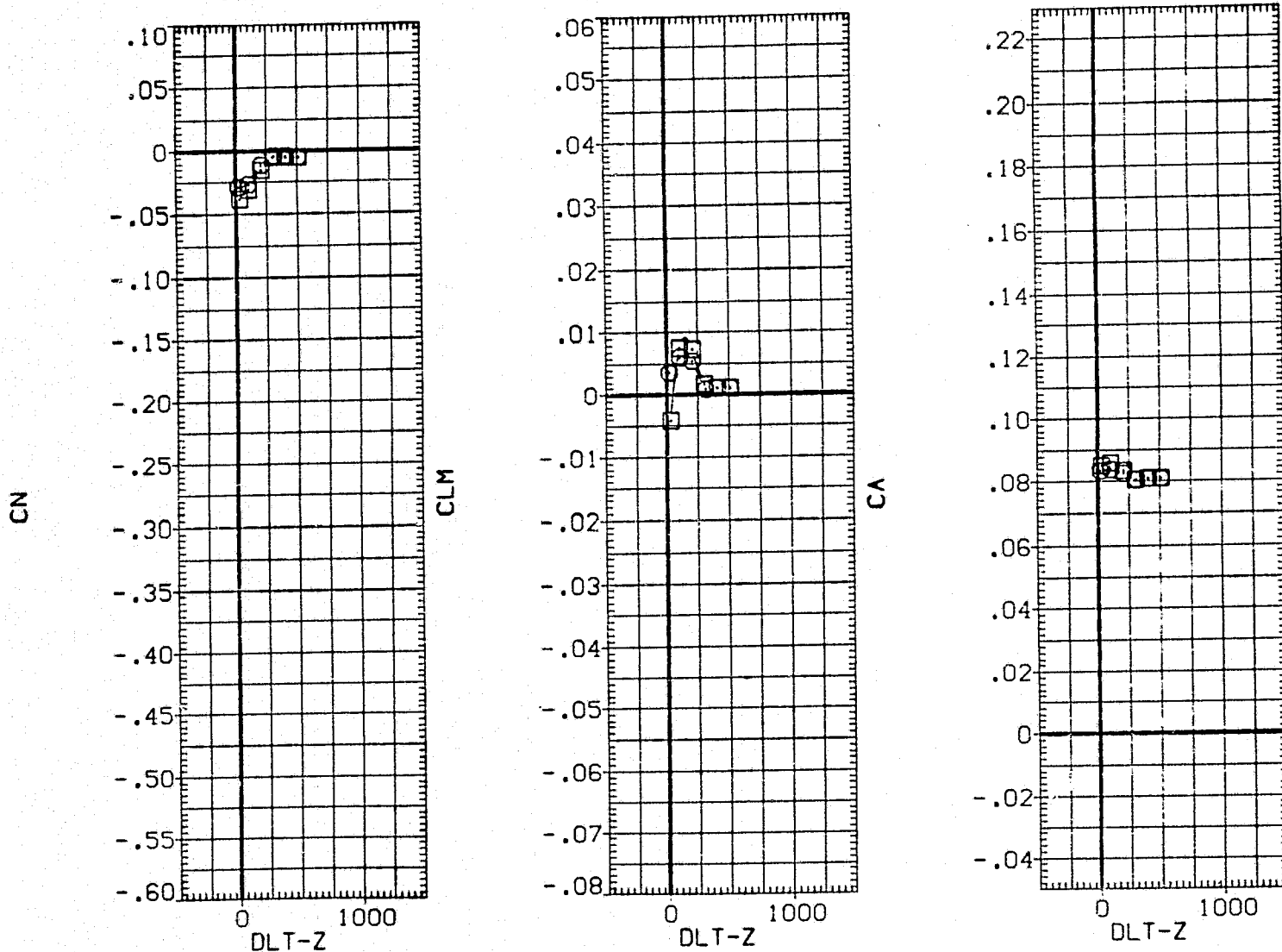


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR122)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.435		ALPHA	.000
□	200.390	BETA	DLTALF	.000
		DLTBTA	MACH	7.980
		AILRON	ELEVON	.000
		GRID		16.000

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

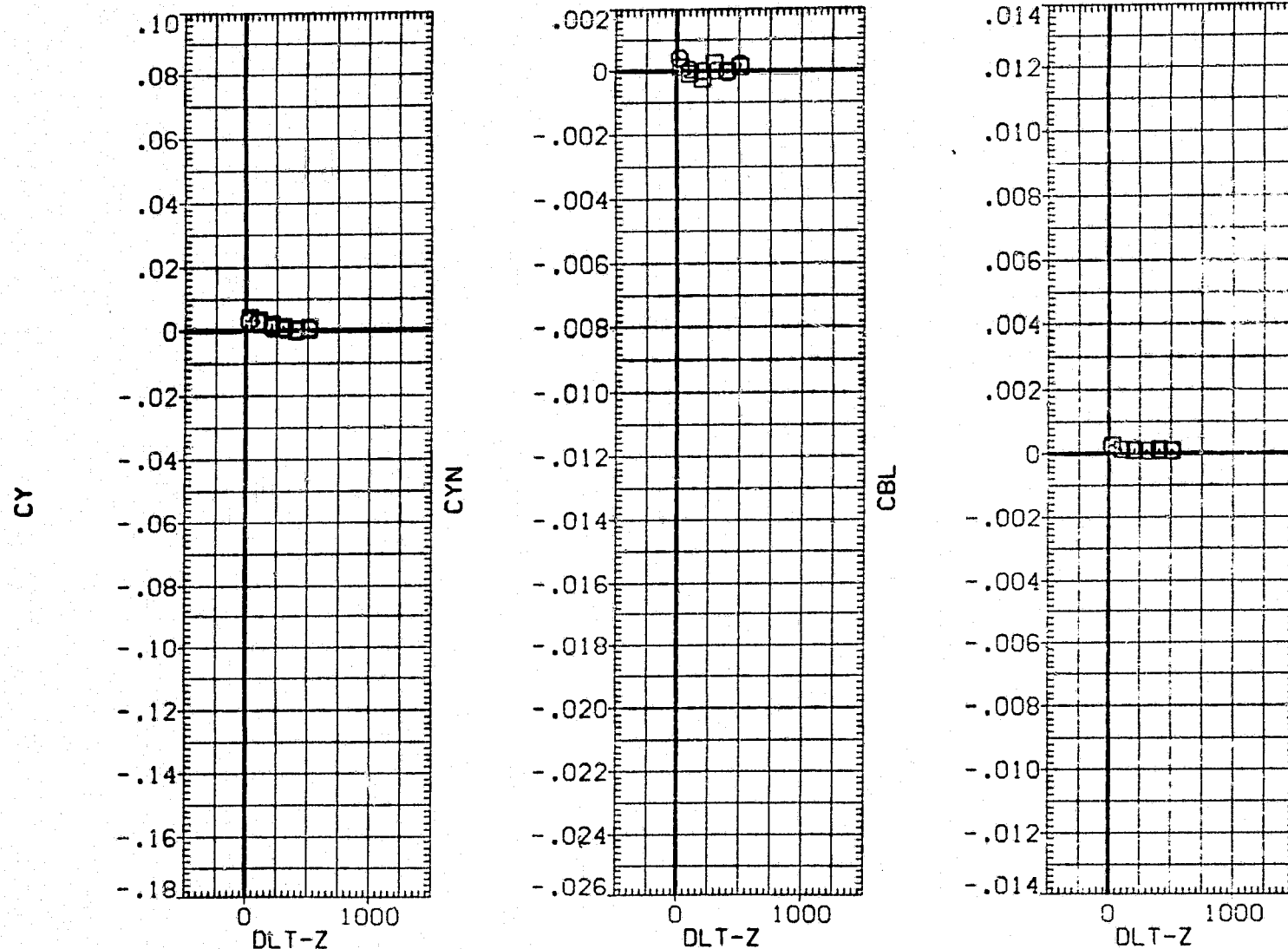


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR123)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.509	BETA	.000	.000	
□	200.480	DLTBTA	.000	DLTALF	-5.000
		AILRON	.000	MACH	7.980
		GRID	16.000	ELEVON	.000

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

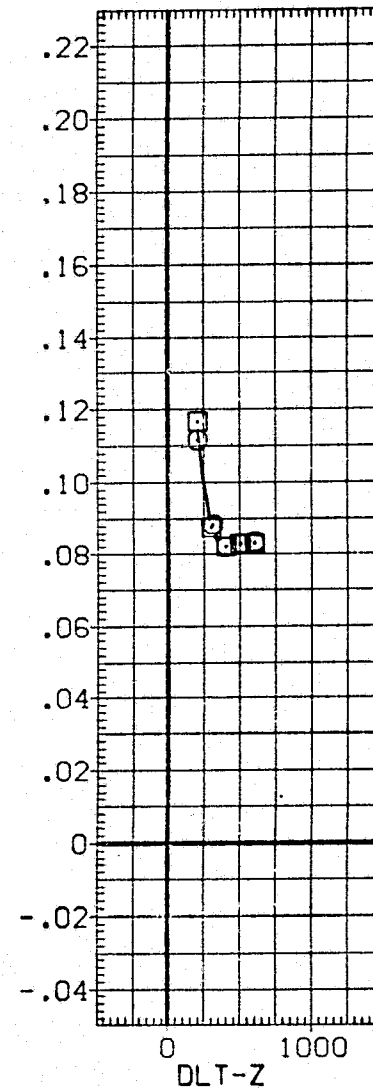
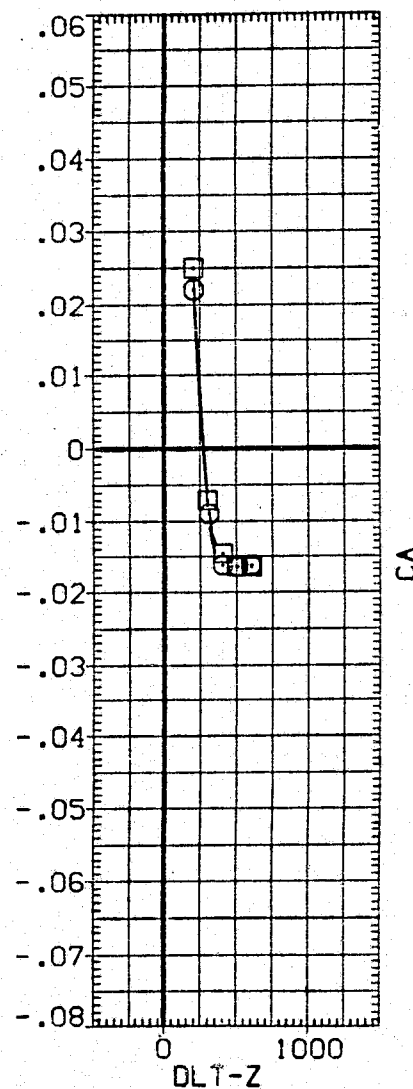
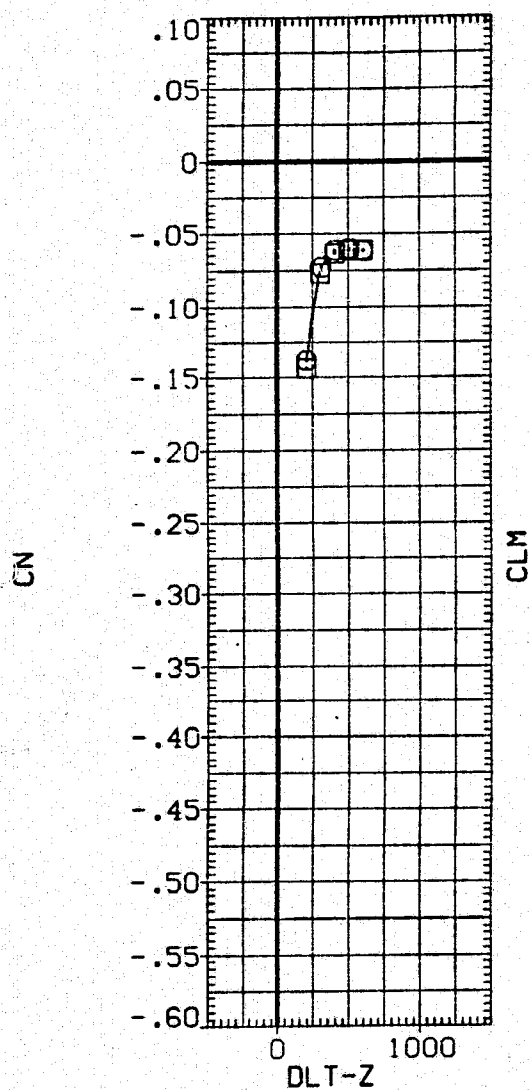


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR123)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.509	.000	ALPHA	.000
□	200.480	.000	DLTALF	-5.000
		.000	MACH	7.980
		.000	ELEVON	.000
		16.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

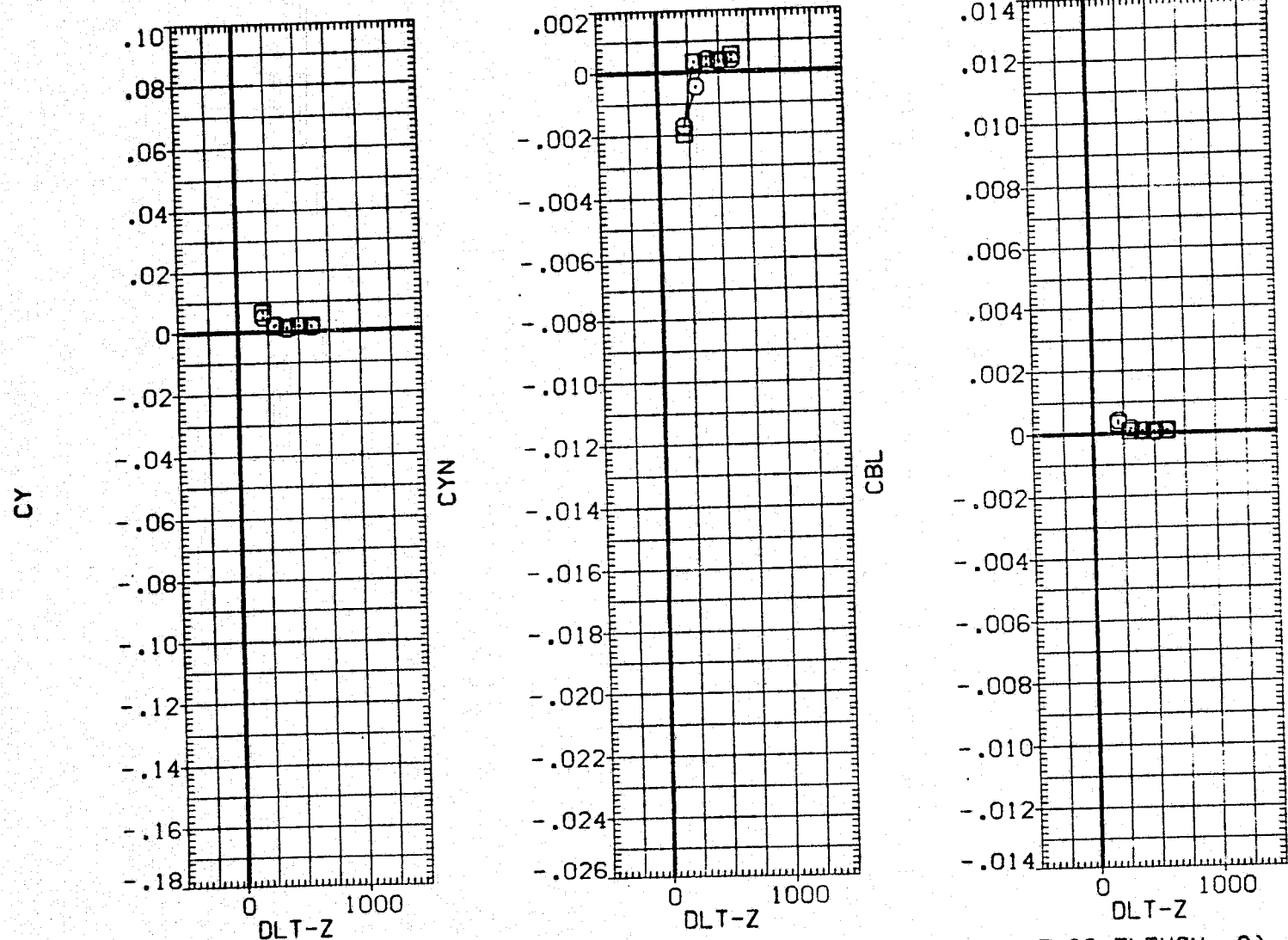


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR124)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.540	.000	.000	-10.000	7.980	.000
□	200.520	BETA	.000			
◇	400.480	DLTBTA	.000			
		AILRON	.000			
		GRID	16.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

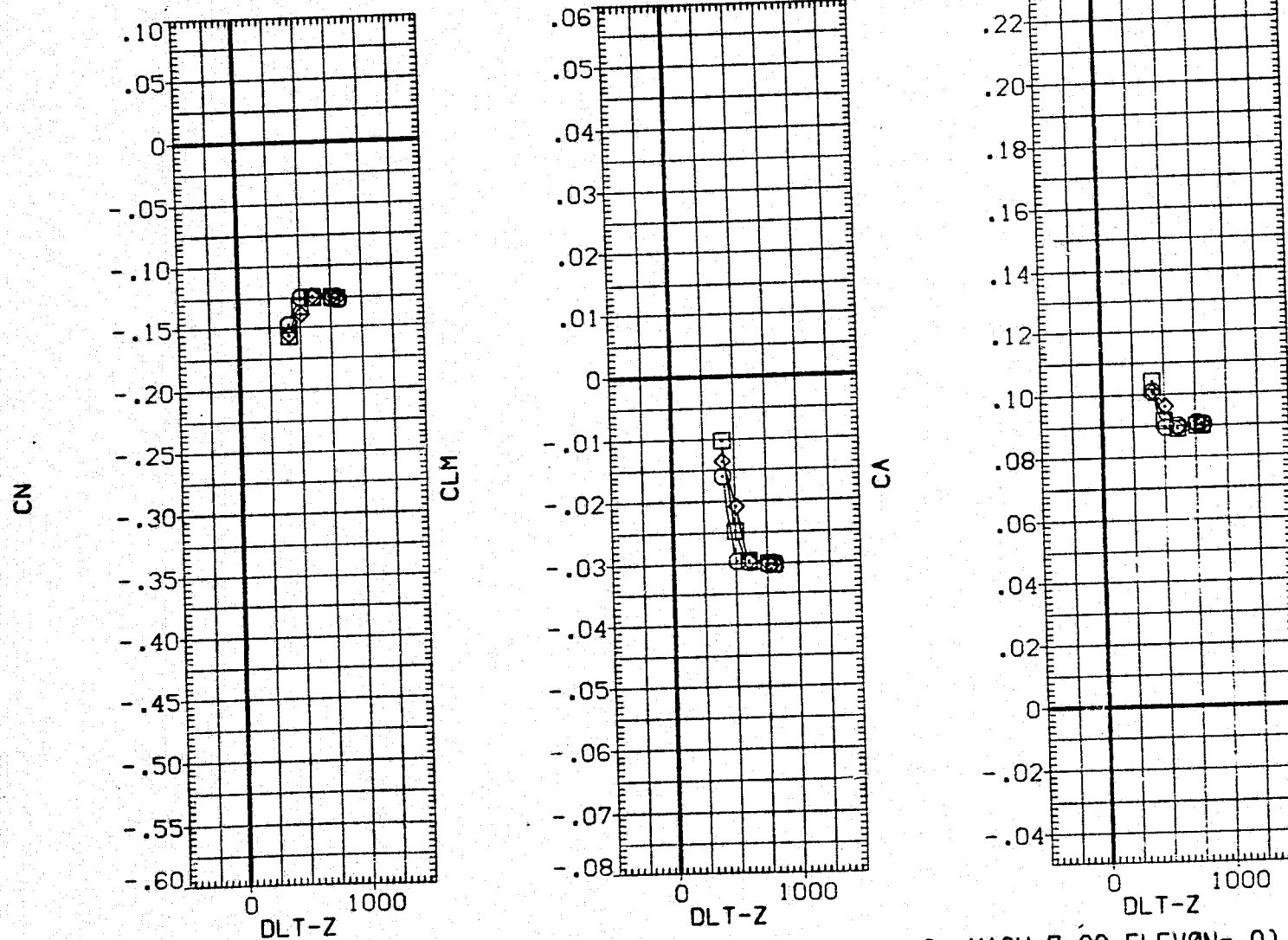


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR124)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.540	.000	DLTALF	-10.000	
□	200.520	.000	MACH	7.980	
◇	400.480	.000	ELEVON	.000	
		AILRON			
		GRID	16.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

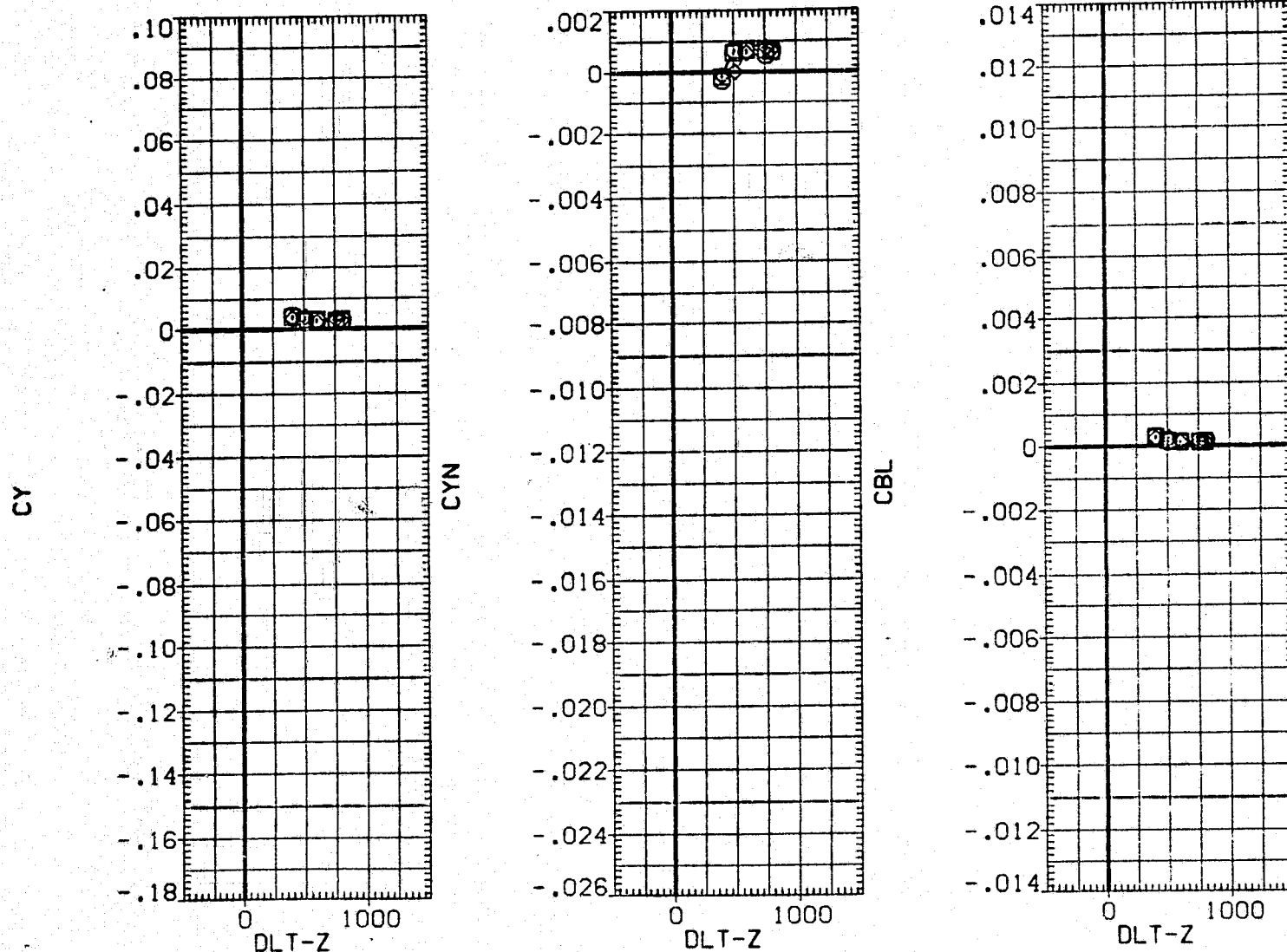


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR125)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
◇	.412	200.400	.000	-15.000	7.980	.000
□	400.330	DLTBT	.000			
		AIRLON	.000			
		GRID	16.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

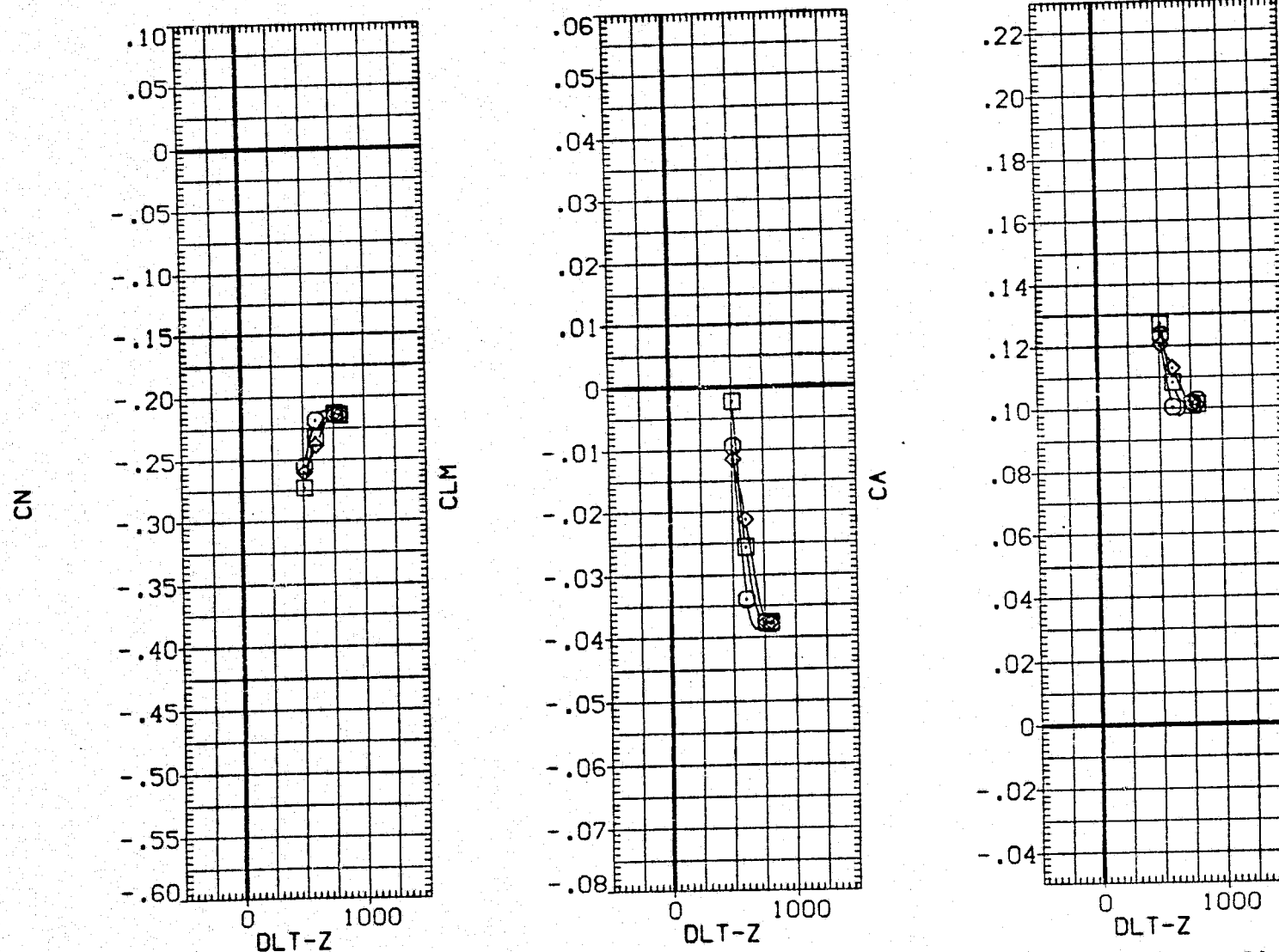


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR125)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	BETA	DLTBT	AILRON	GRID
◇	.412	.000	.000	.000	.000	15.000
□	200.400	.000	.000	.000	.000	
◇	400.330	.000	.000	.000	.000	

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

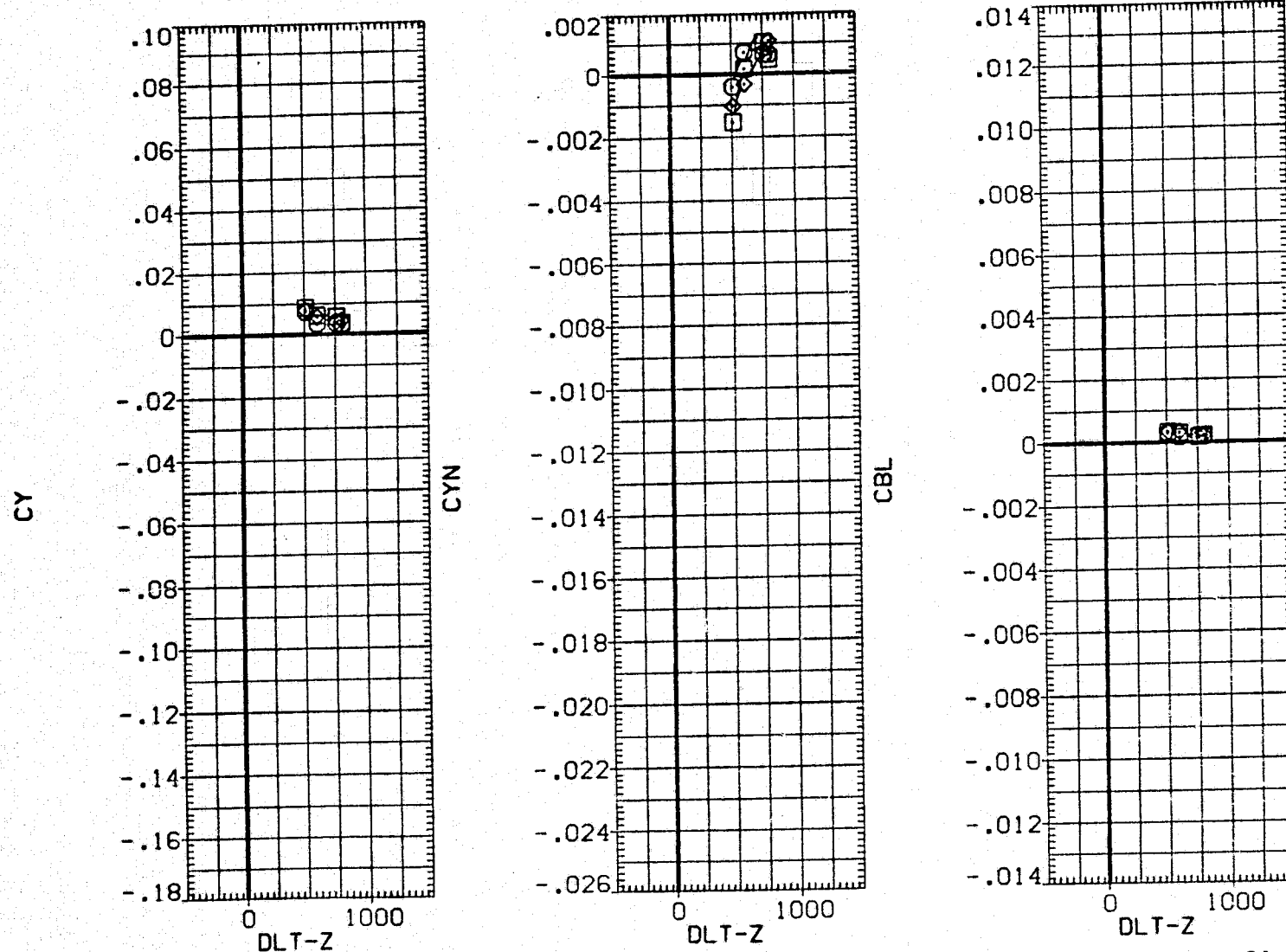


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR127)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.467	.000	DLTALF	.000
□	200.330	.000	MACH	-20.000
◇	400.420	.000	ELEVON	7.980
		.000		.000
		16.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

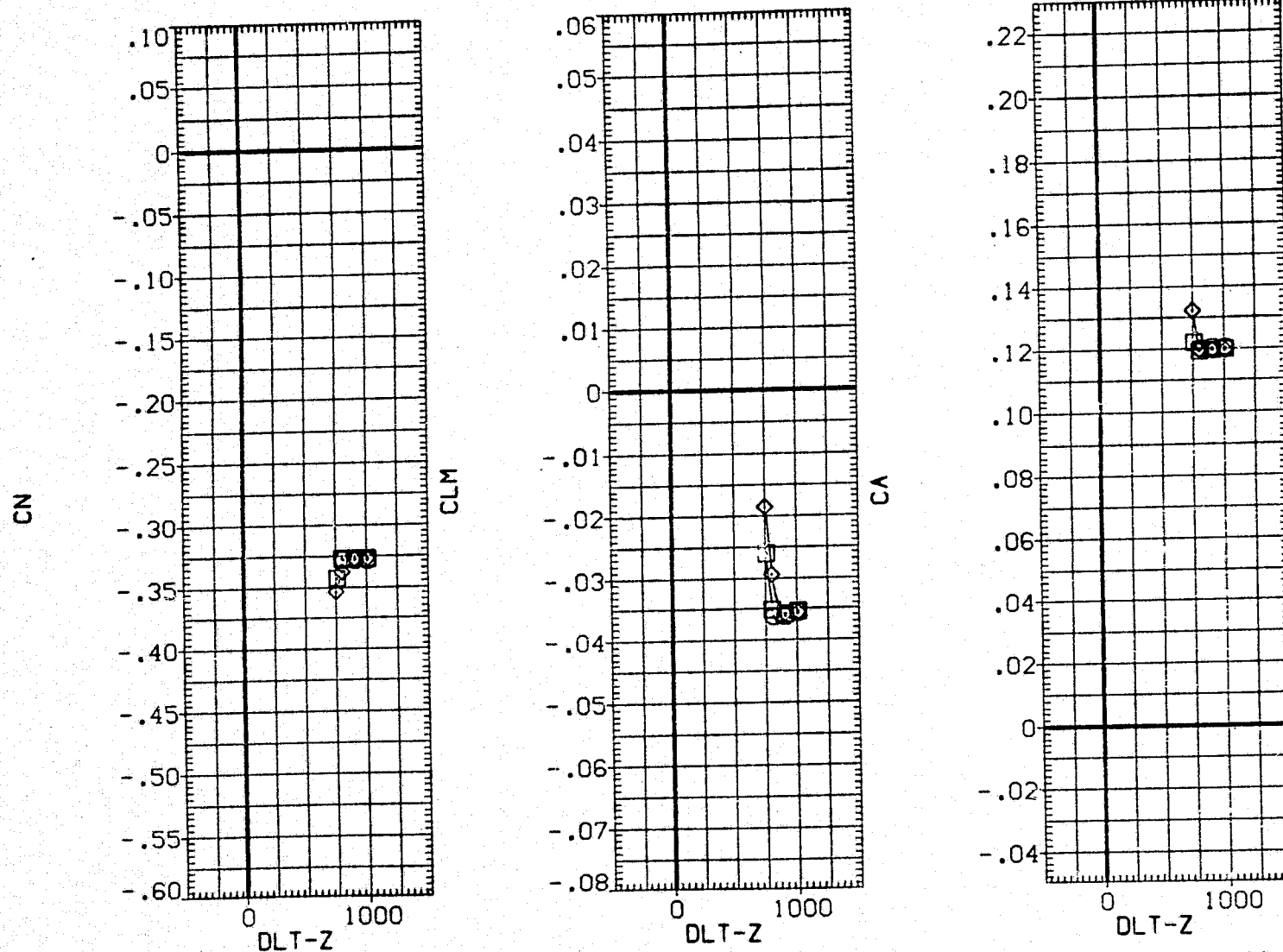


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR127)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.467	.000	.000	-20.000	7.980	.000
□	200.330	.000	.000			
◇	400.420	.000	.000			
		16.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

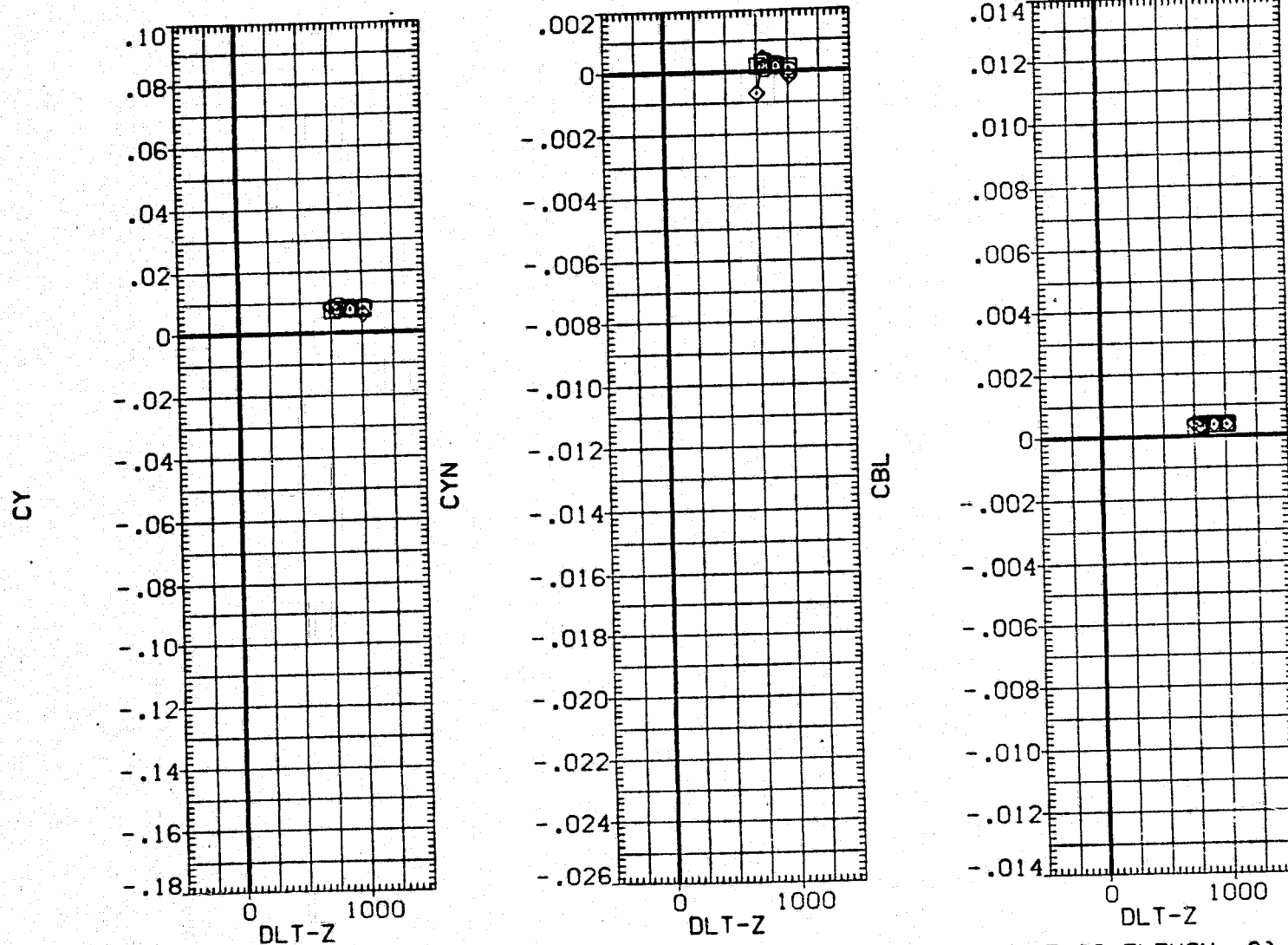


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR128)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLTALF	MACH
○	.453		.000	.000	.000	7.980
□	200.470	BETA	.000		.000	
		DLTBT A	.000	ELEVON	.000	
		AILRON	.000	P0	300.000	
		GRID	16.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

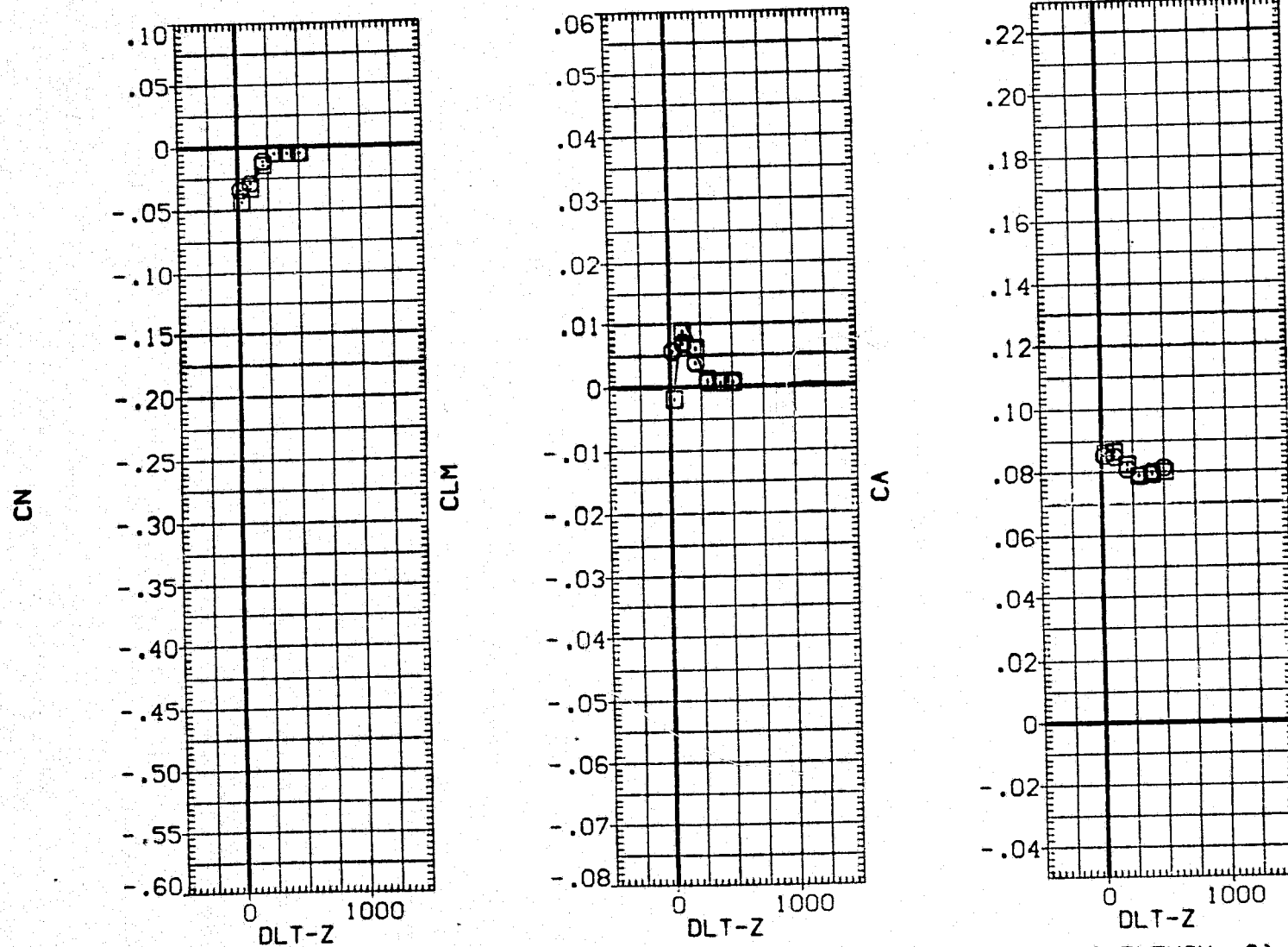


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR128)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.453	.000	.000	.000	7.980	.000
□	200.470	.000	.000	.000	.000	.000
	DLTBT	.000	P0	300.000		
	AILRON	.000				
	GRID	16.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

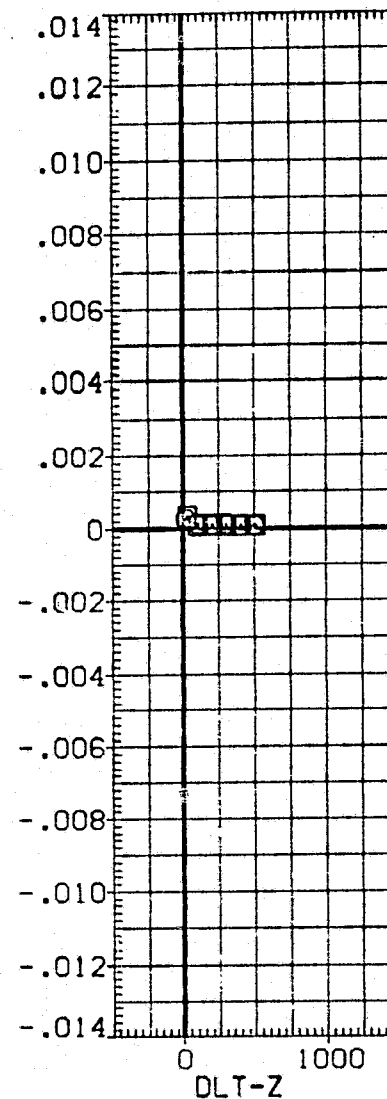
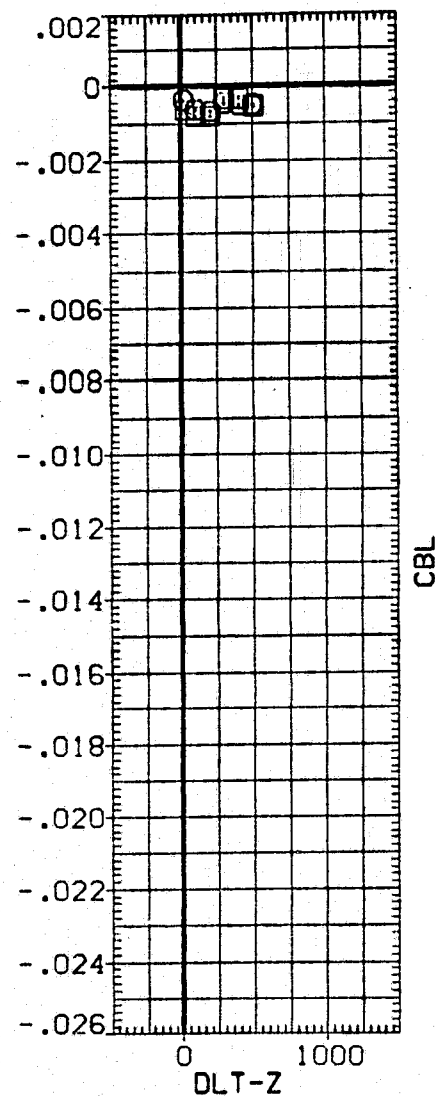
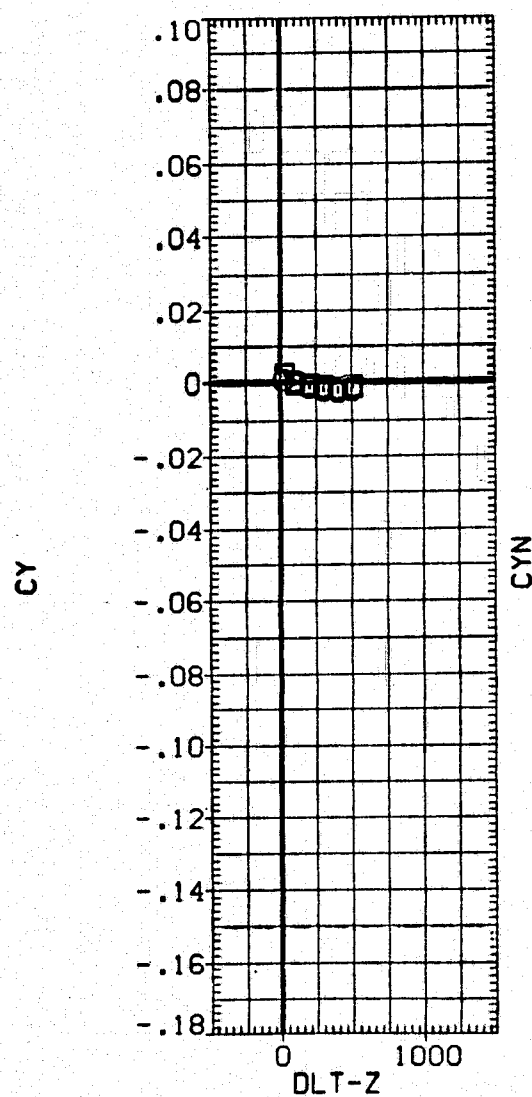


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR129)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.654	BETA	.000	.000	
□	200.420	DLTBTA	.000	DLTALF	-5.000
		AILRON	.000	MACH	7.980
		GRID	16.000	ELEVON	.000
				P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

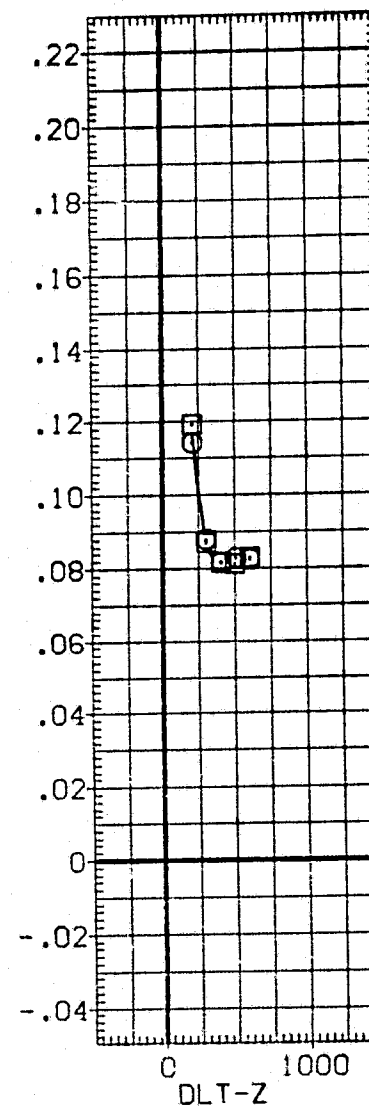
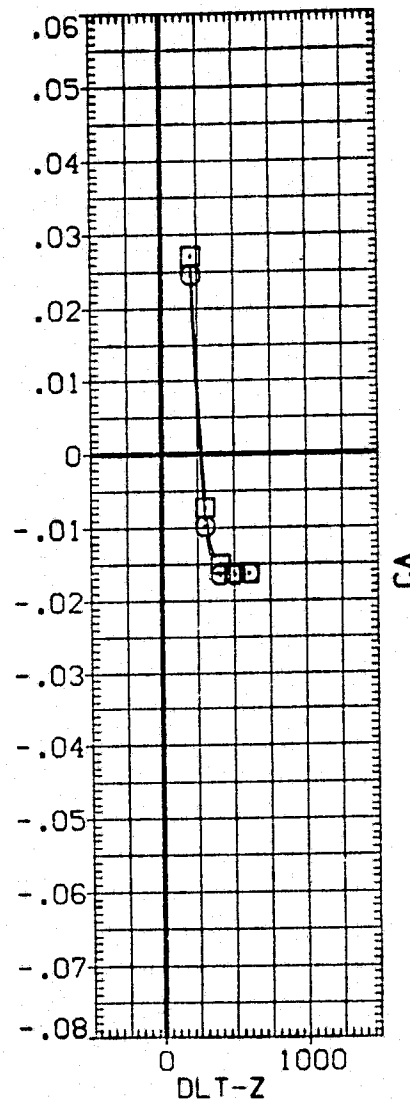
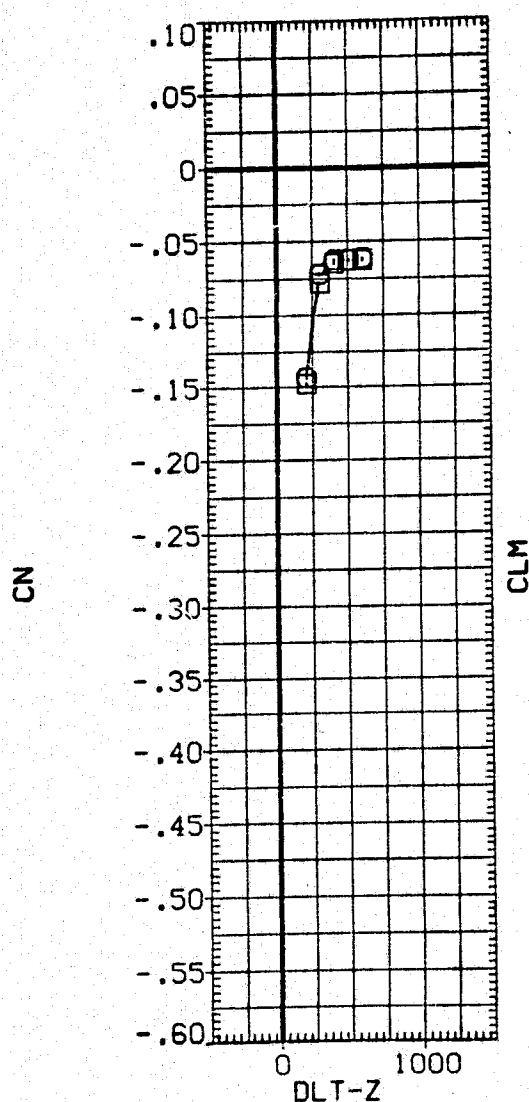


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR129)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.654	.000	ALPHA	.000
□	200.420	.000	DLTALF	-5.000
		.000	MACH	7.980
		.000	ELEVON	.000
		16.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

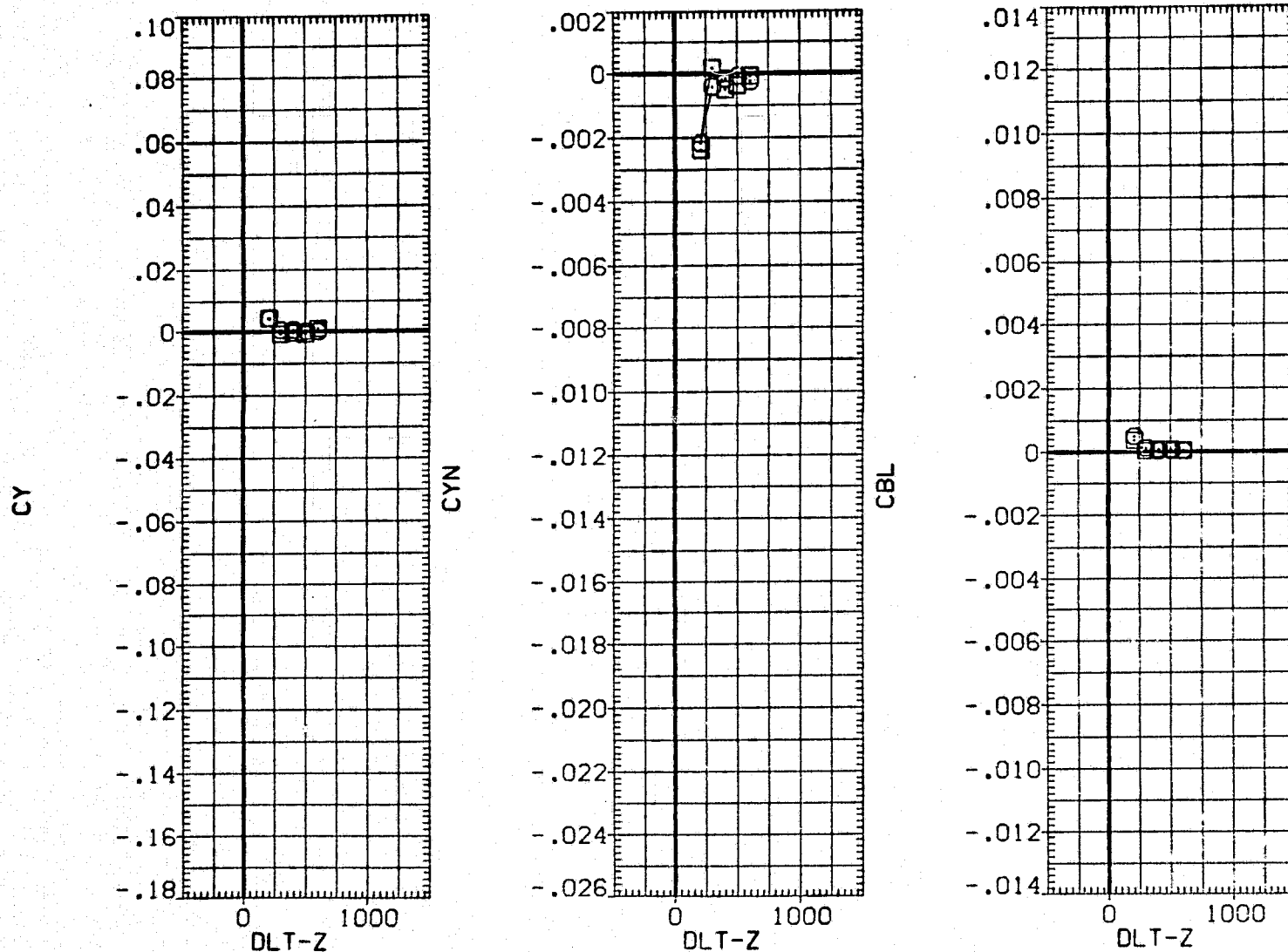


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR130)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	.550	DLT-Y	.000	ALPHA	.000	
○	200.410	BETA	.000	DLTALF	-10.000	
□	400.450	DLTBTA	.000	MACH	7.980	
◇		AILRON	.000	ELEVON	.000	
		GRID	16.000	PG	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

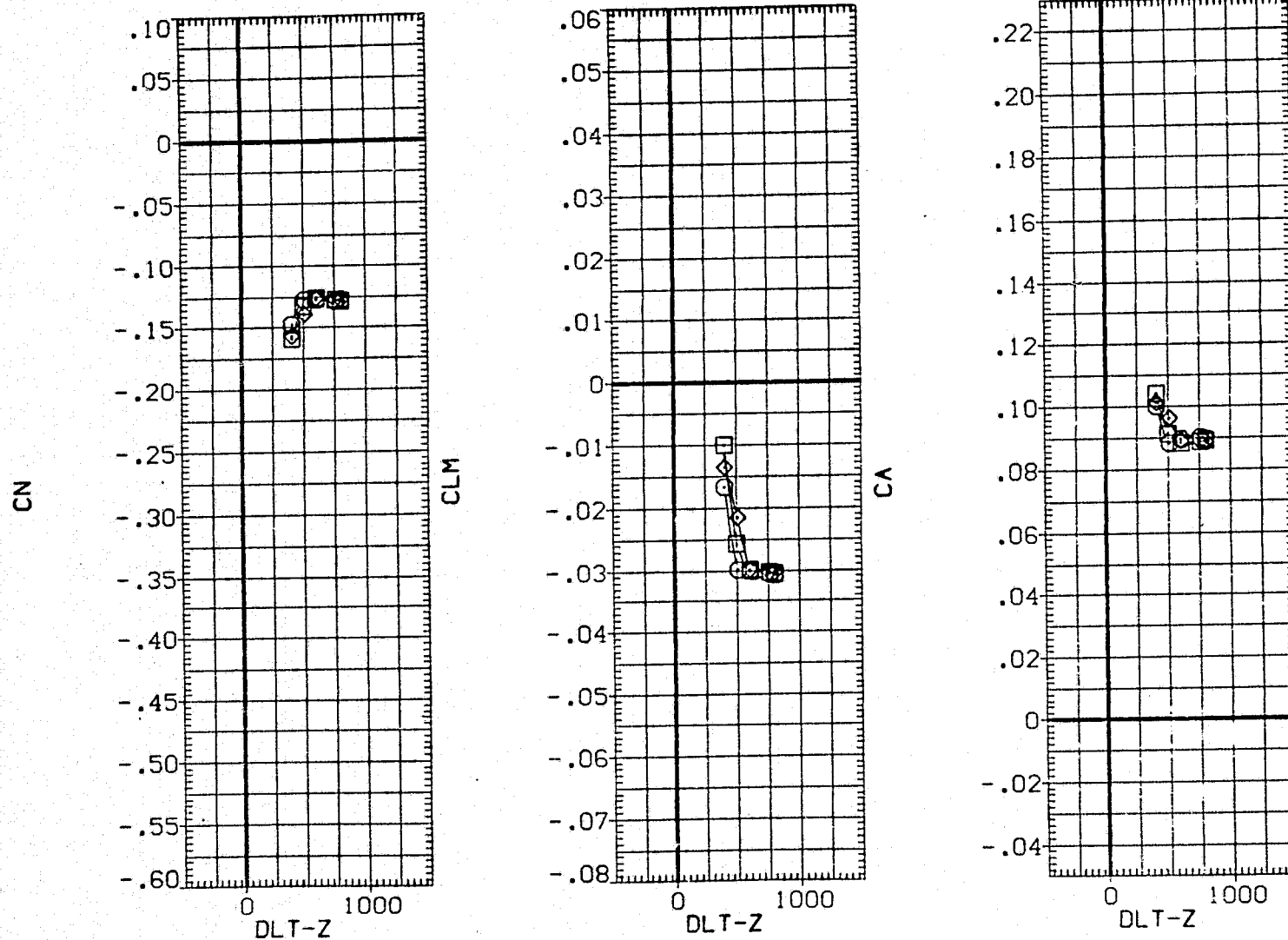


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR130)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.550	.000	ALPHA	.000	
□	200.410	BETA	.000	DLTALF	-10.000
◇	400.450	DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	16.000	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

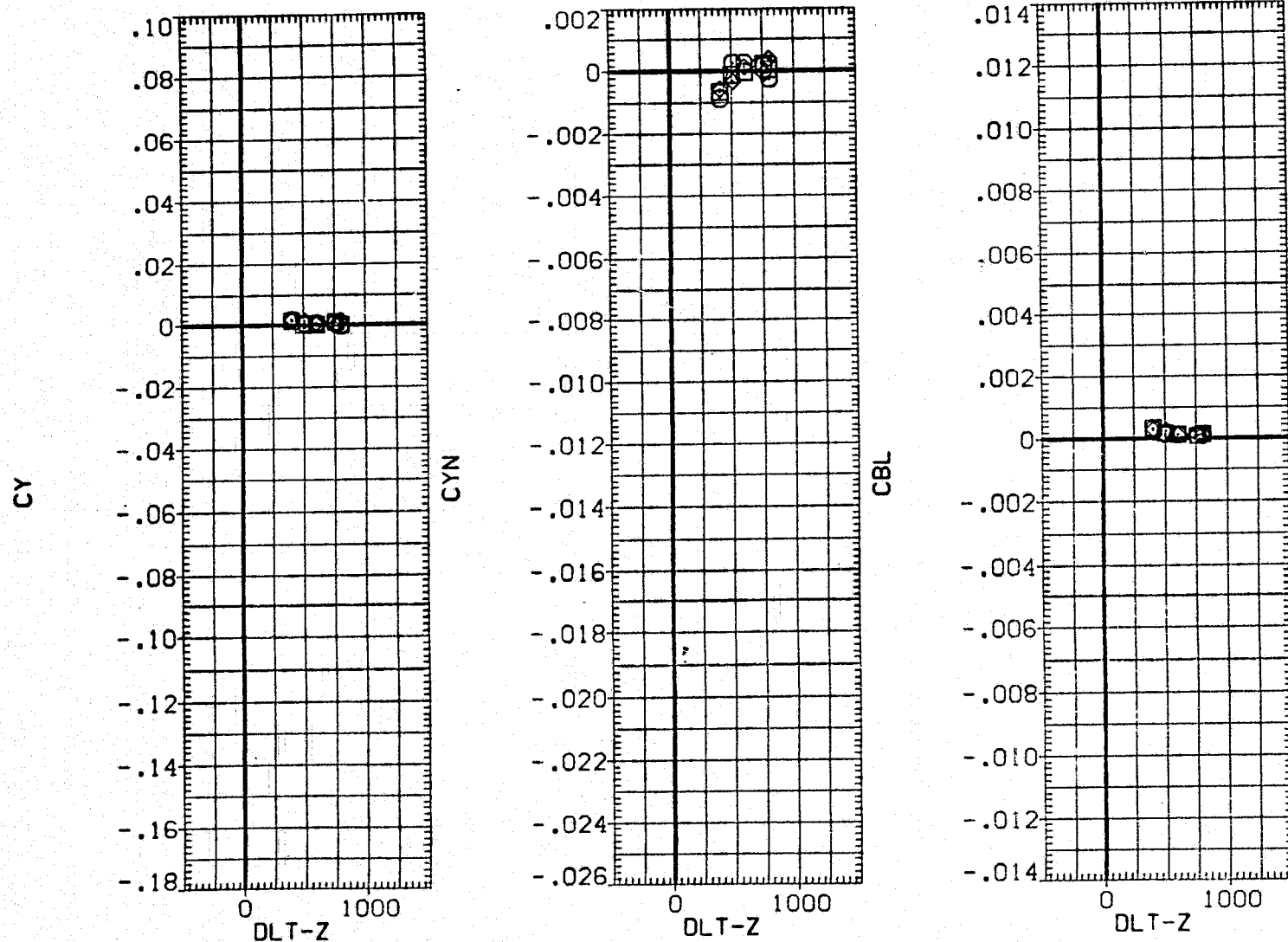


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR131)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.534	.000	.000	.000	7.980	.000
□	200.560	BETA	3.000	DLTALF	7.980	.000
		DLTBTA	.000	MACH	7.980	.000
		AILRON	.000	ELEVON	.000	.000
		GRID	17.000	PG	420.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

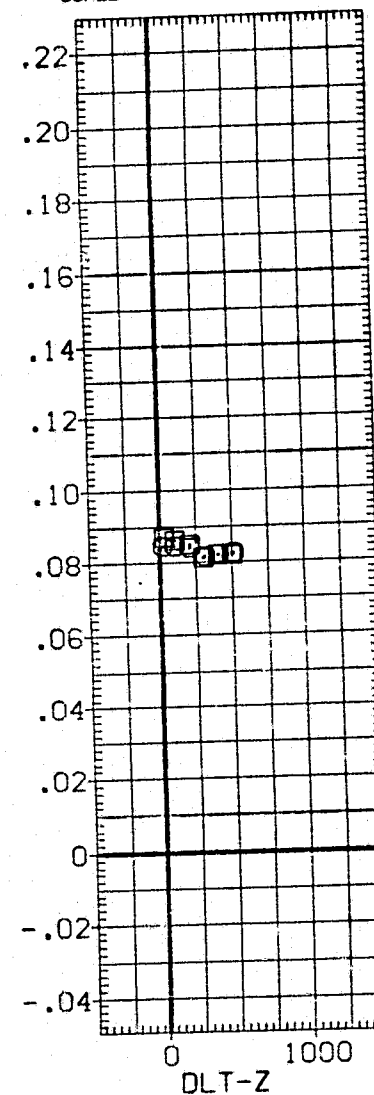
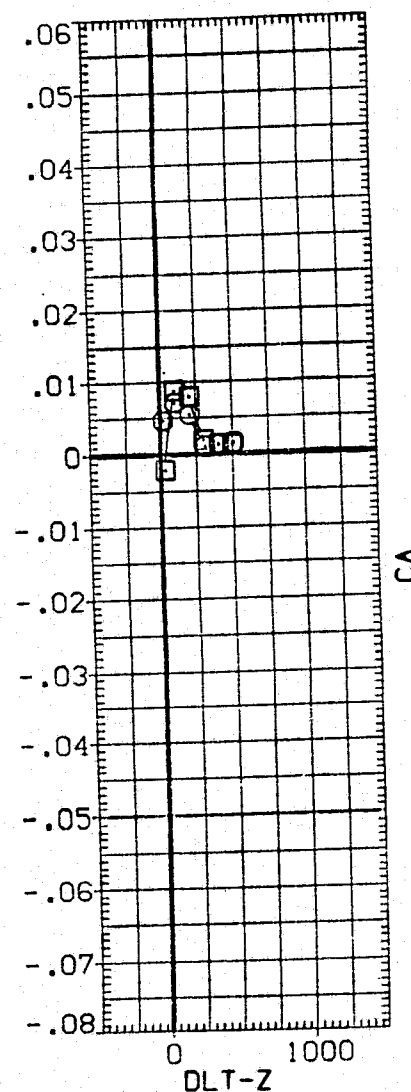
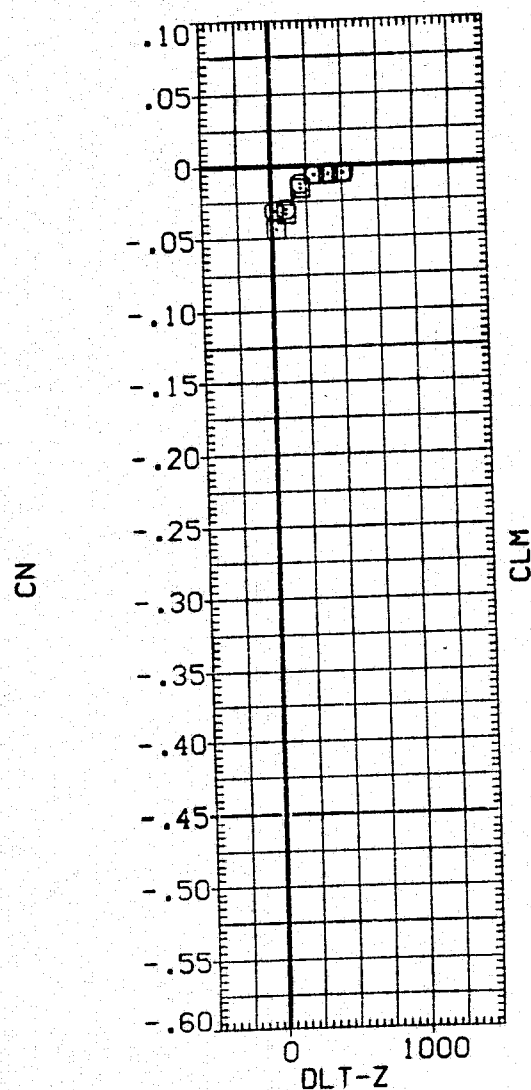


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR131)

SYMBOL		DLT-X	PARAMETRIC VALUES			
○		.534	DLT-Y	.000	ALPHA	.000
□		200.560	BETA	3.000	DLTALF	.000
			DLTBT	.000	MACH	7.980
			AILRON	.000	ELEVON	.000
			GRID	17.000	PG	420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

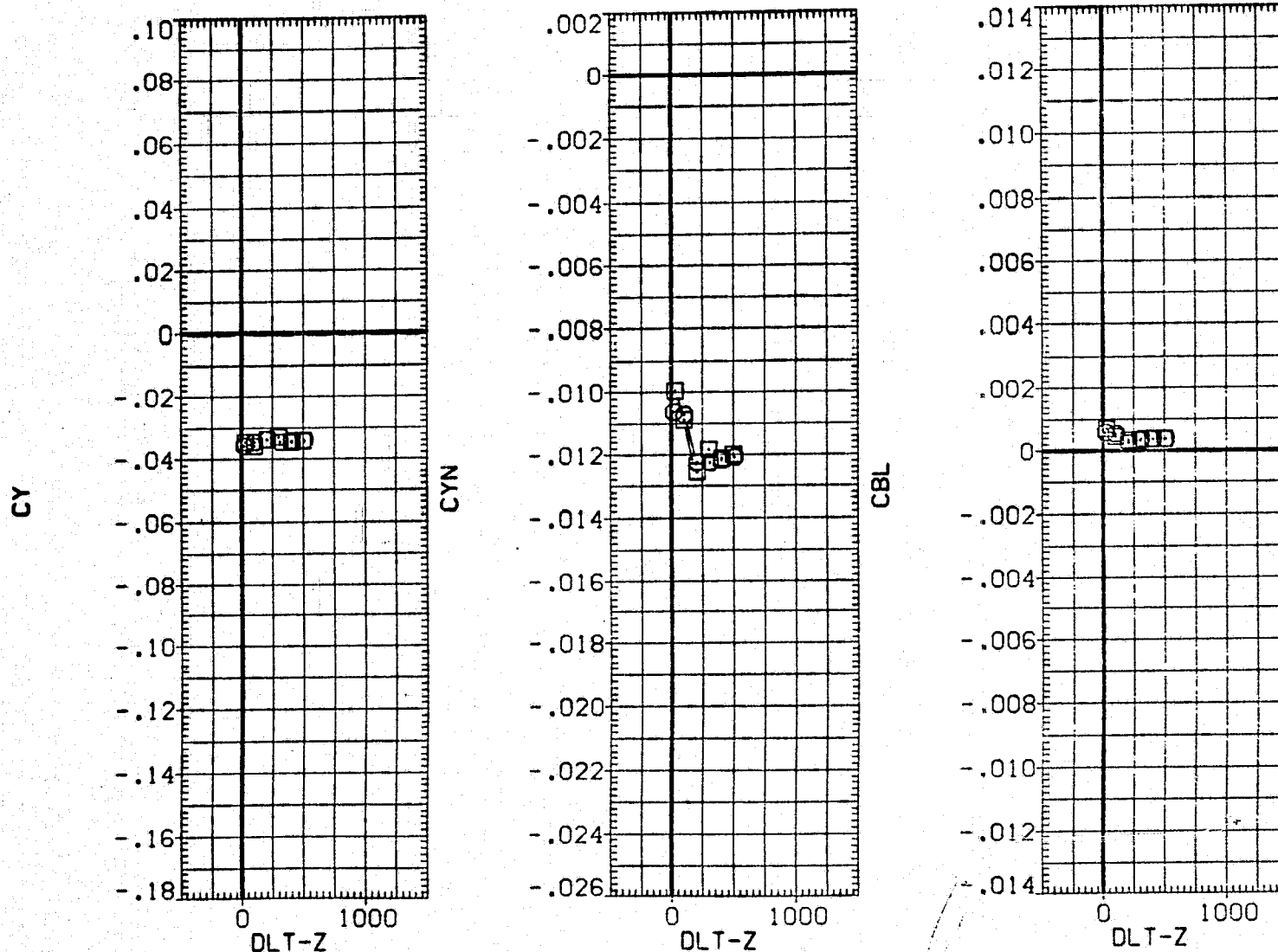


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR132)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.605	.000	BETA	3.000	DLTALF
□	200.550	.000	DLTBTA	.000	MACH
		.000	AILRON	.000	ELEVON
		17.000	GRID	P0	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

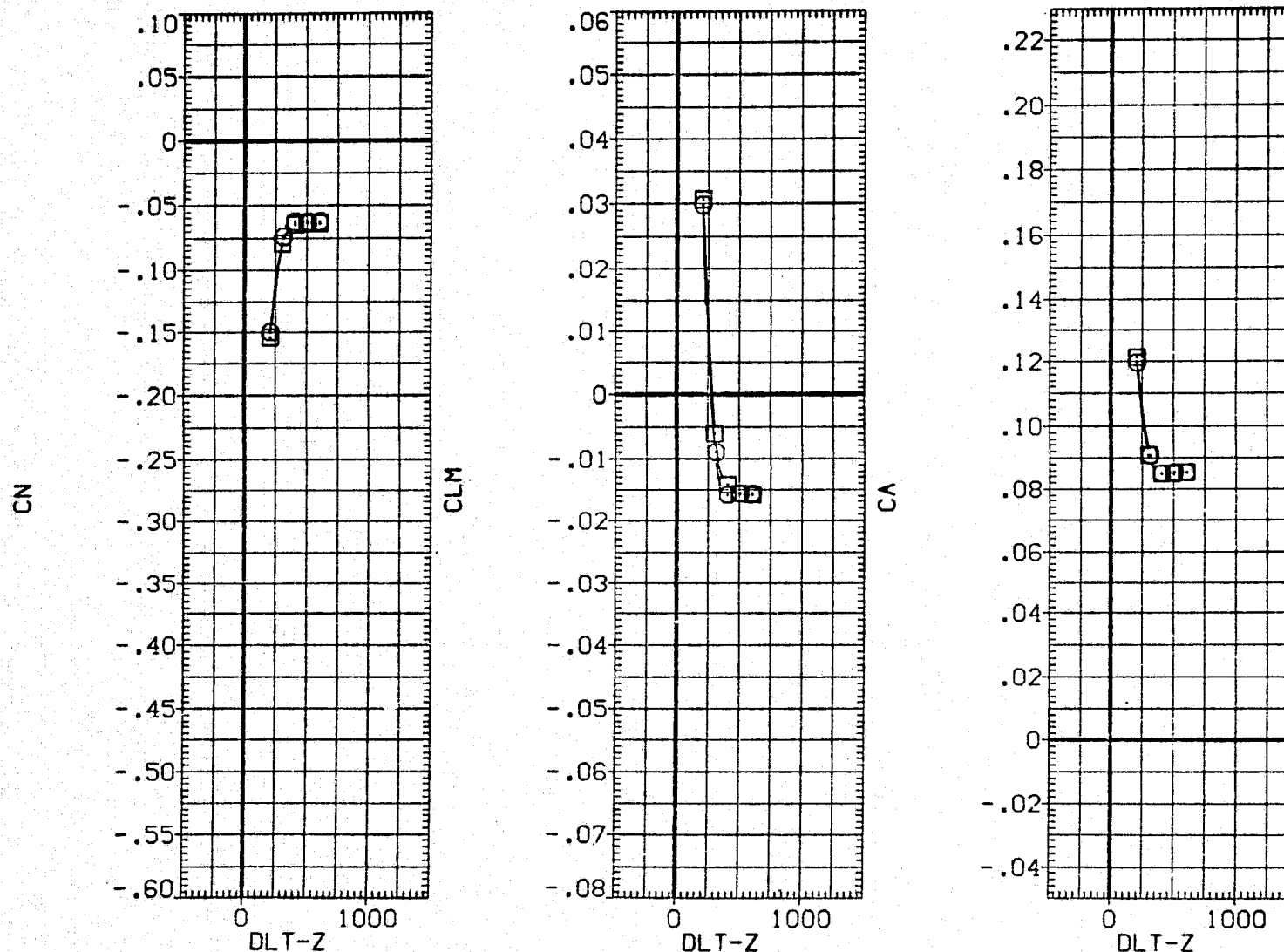


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR132)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.605		.000	.000
□	200.550	BETA	3.000	-5.000
		DLTBTA	.000	MACH
		AILRON	.000	ELEVON
		GRID	17.000	P0
				420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

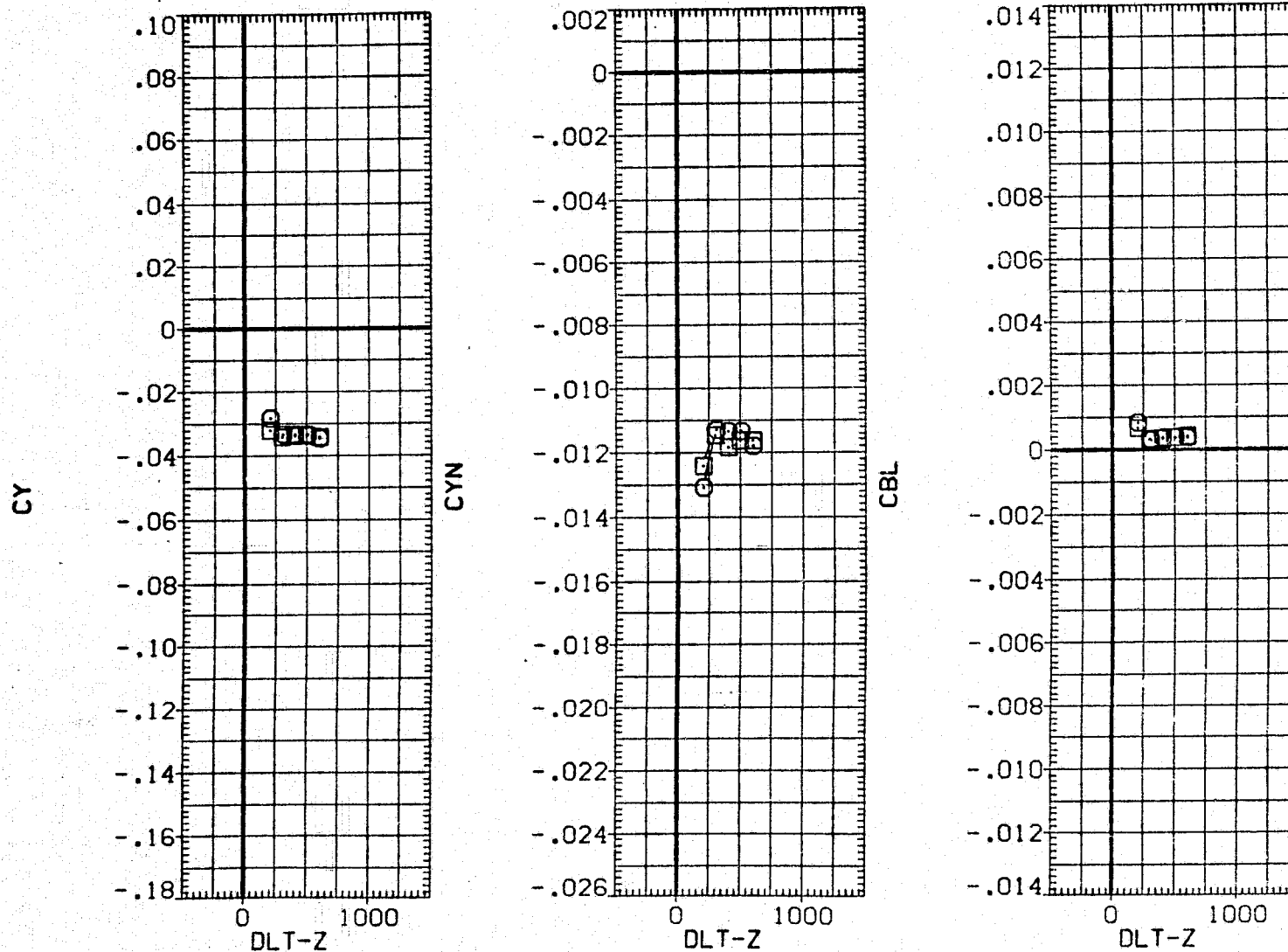


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR133)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.563		ALPHA	.000
□	200.480	BETA	3.000	DLTALF -10.000
◇	400.400	DLTBTA	.000	MACH 7.980
		AILRON	.000	ELEVON .000
		GRID	17.000	PQ 420.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

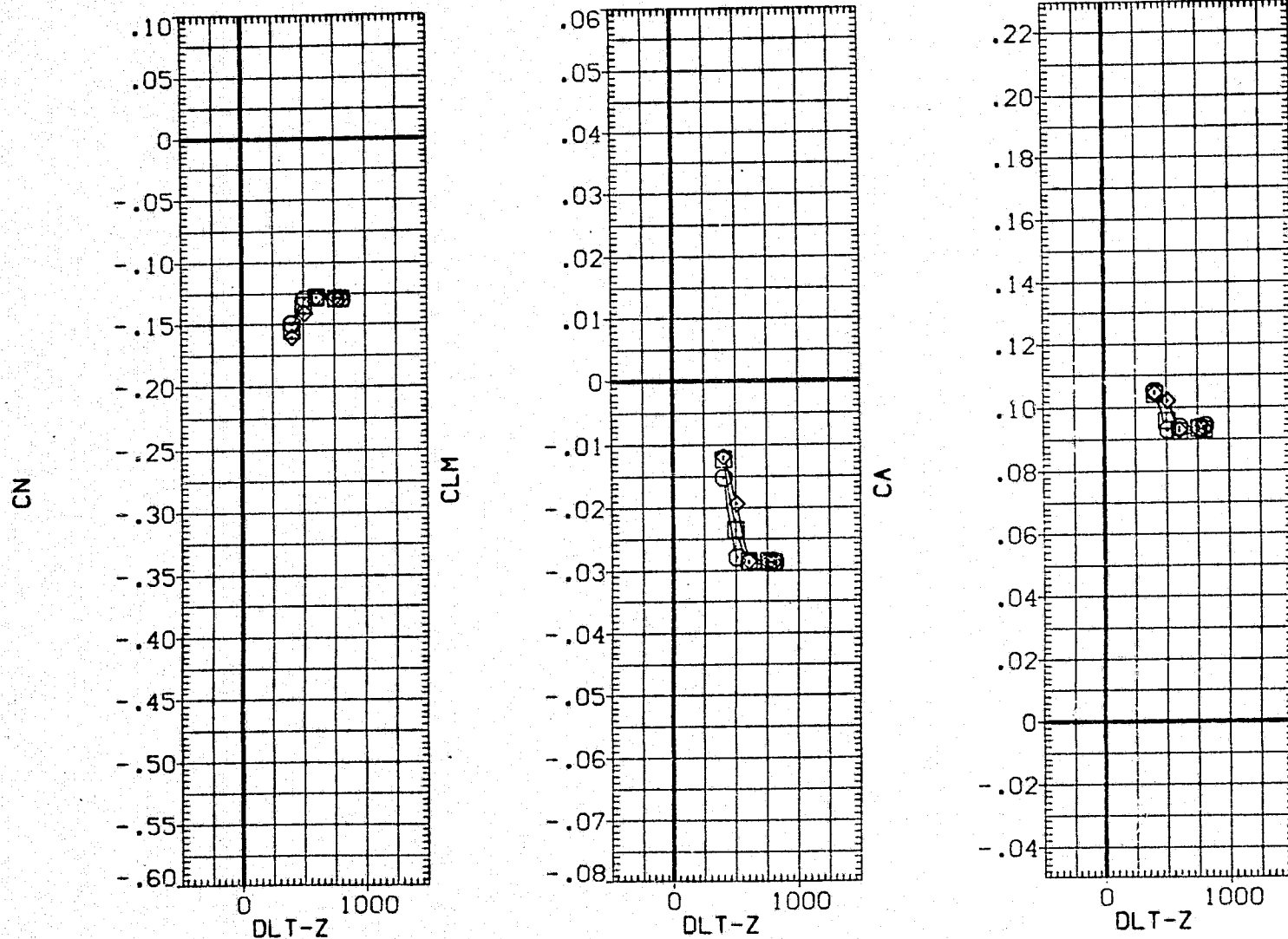


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR133)

SYMBOL		DLT-X	PARAMETRIC VALUES			
○		.563	DLT-Y	.000	ALPHA	.000
□		200.480	BETA	3.000	DLTALF	-10.000
◇		400.400	DLTBTA	.000	MACH	7.980
			AILRON	.000	ELEVON	.000
			GRID	17.000	P0	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

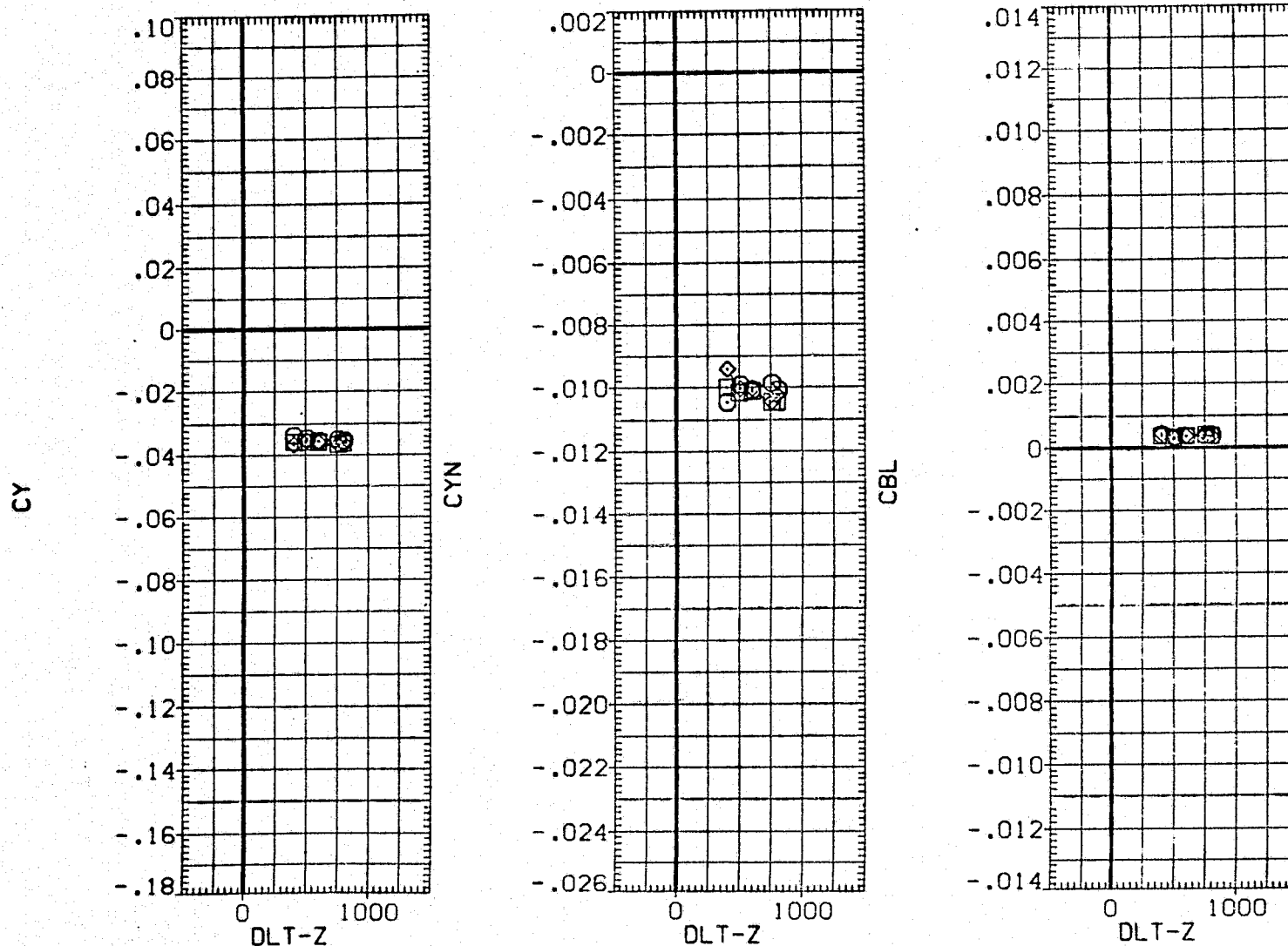


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR134)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES
○	.460	.000	ALPHA .000
□	200.420	BETA 3.000	DLTALF -15.000
◇	400.330	DLTBTA .000	MACH 7.980
		AILRON .000	ELEVON .000
		GRID 17.000	PO 420.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

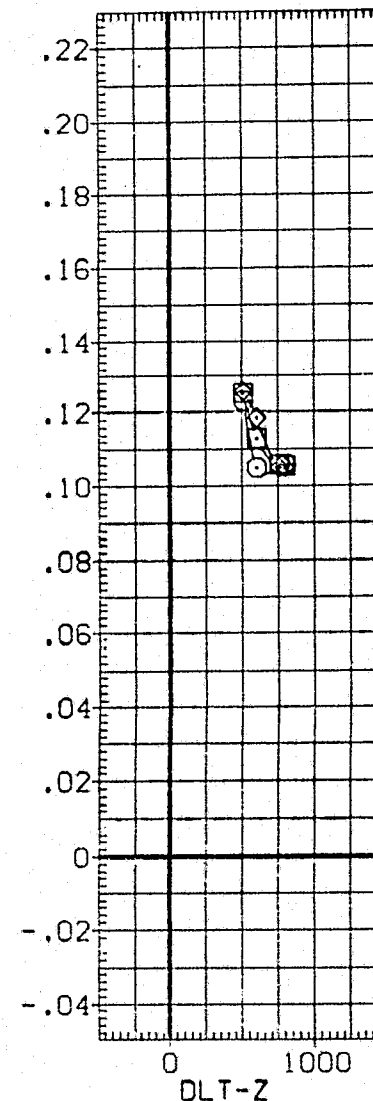
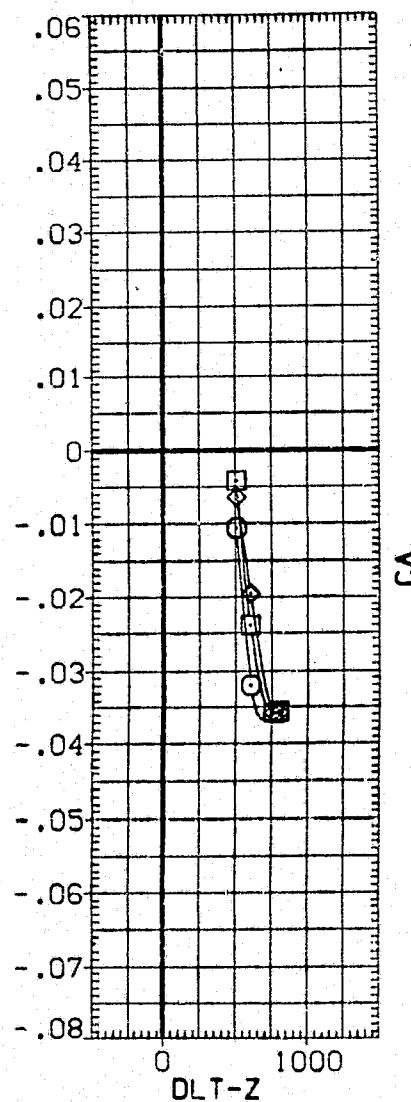
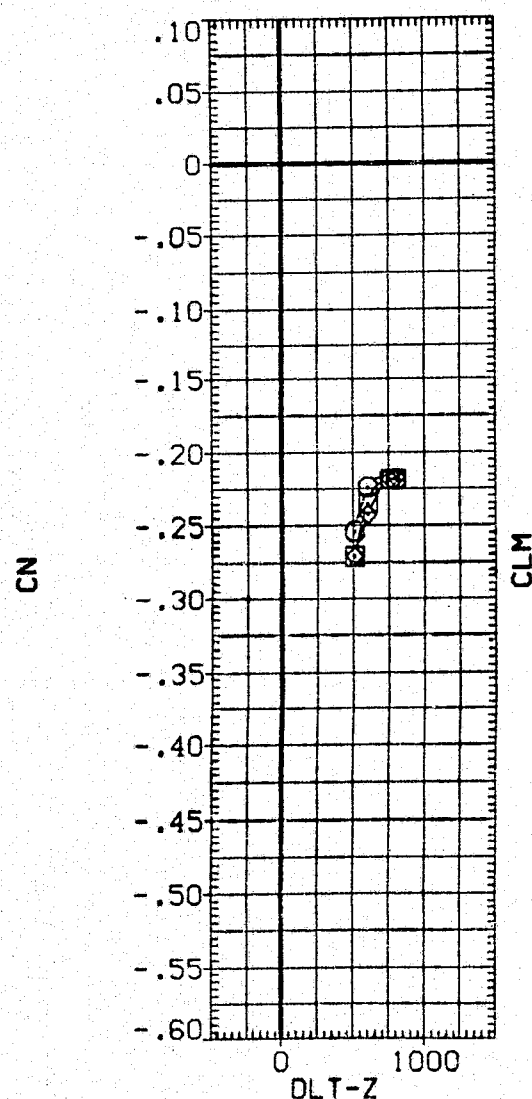


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR134)

SYMBOL
○
□
◇

DLT-X
.460
200.420
400.330

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES
.000
3.000
.000
.000
17.000
ALPHA
DLTALF
MACH
ELEVON
PD

.000
-15.000
7.990
.000
420.000

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

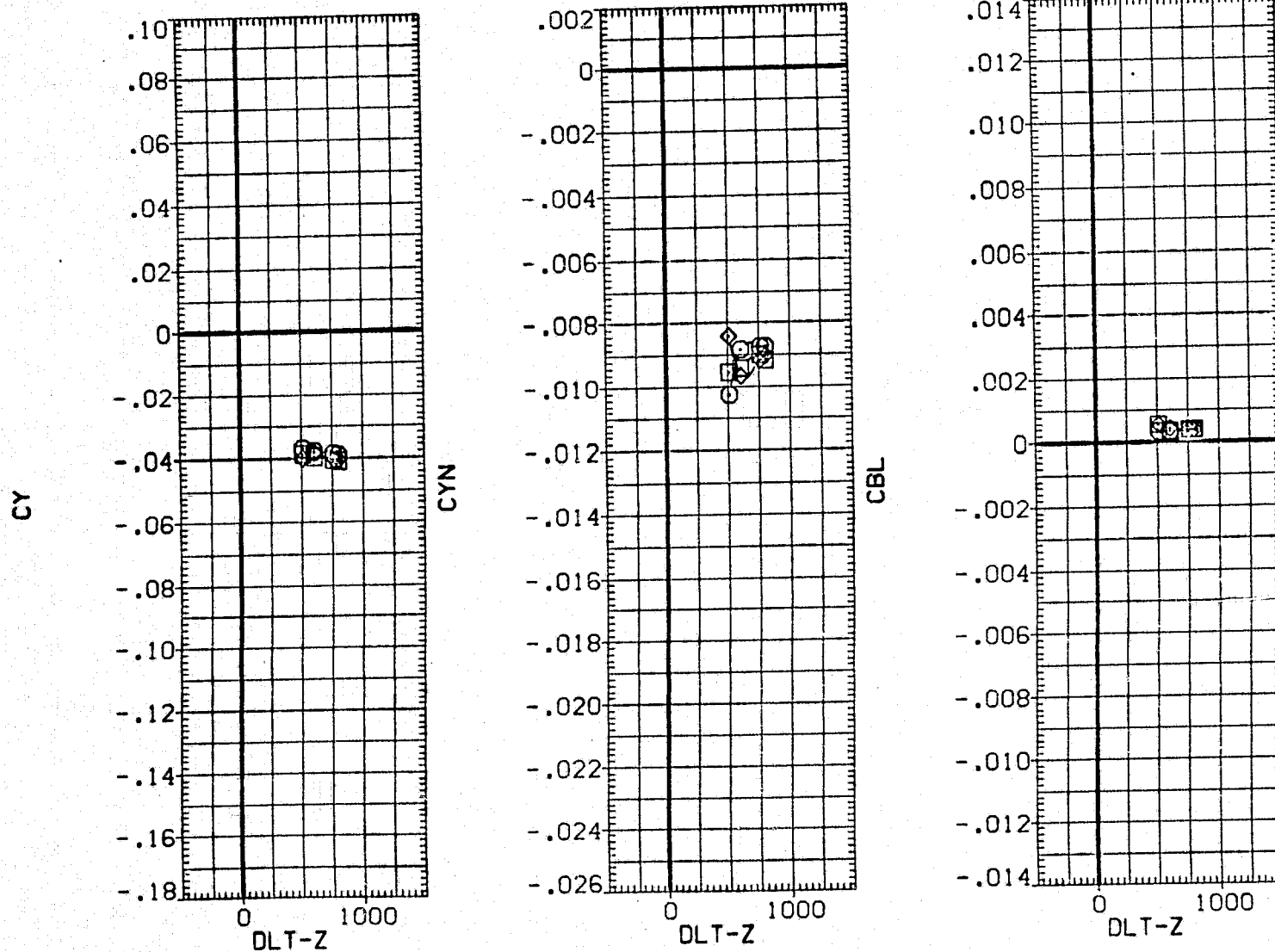


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR136)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.550	.000	ALPHA	.000
□	200.370	BETA	3.000	DLTALF -20.000
◇	400.370	DLTBTA	.000	MACH 7.980
		AILRON	.000	ELEVON .000
		GRID	17.000	PG 420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

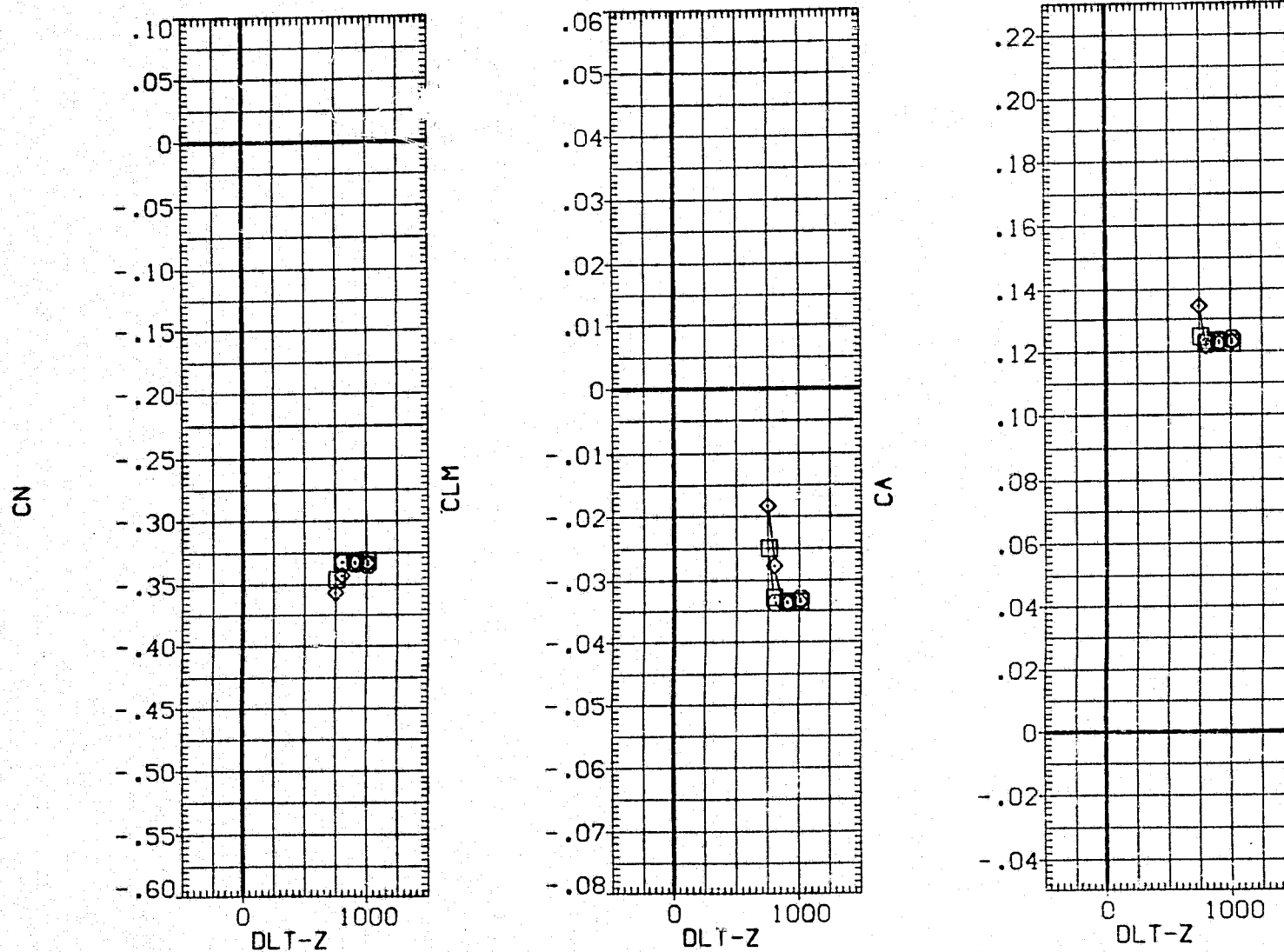


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR136)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.550	.000	DLTALF	.000
□	200.370	BETA 3.000	MACH	-20.000
◇	400.370	DLTBTA .000	ELEVON	7.980
		AILRON .000	P0	.000
		GRID 17.000		420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

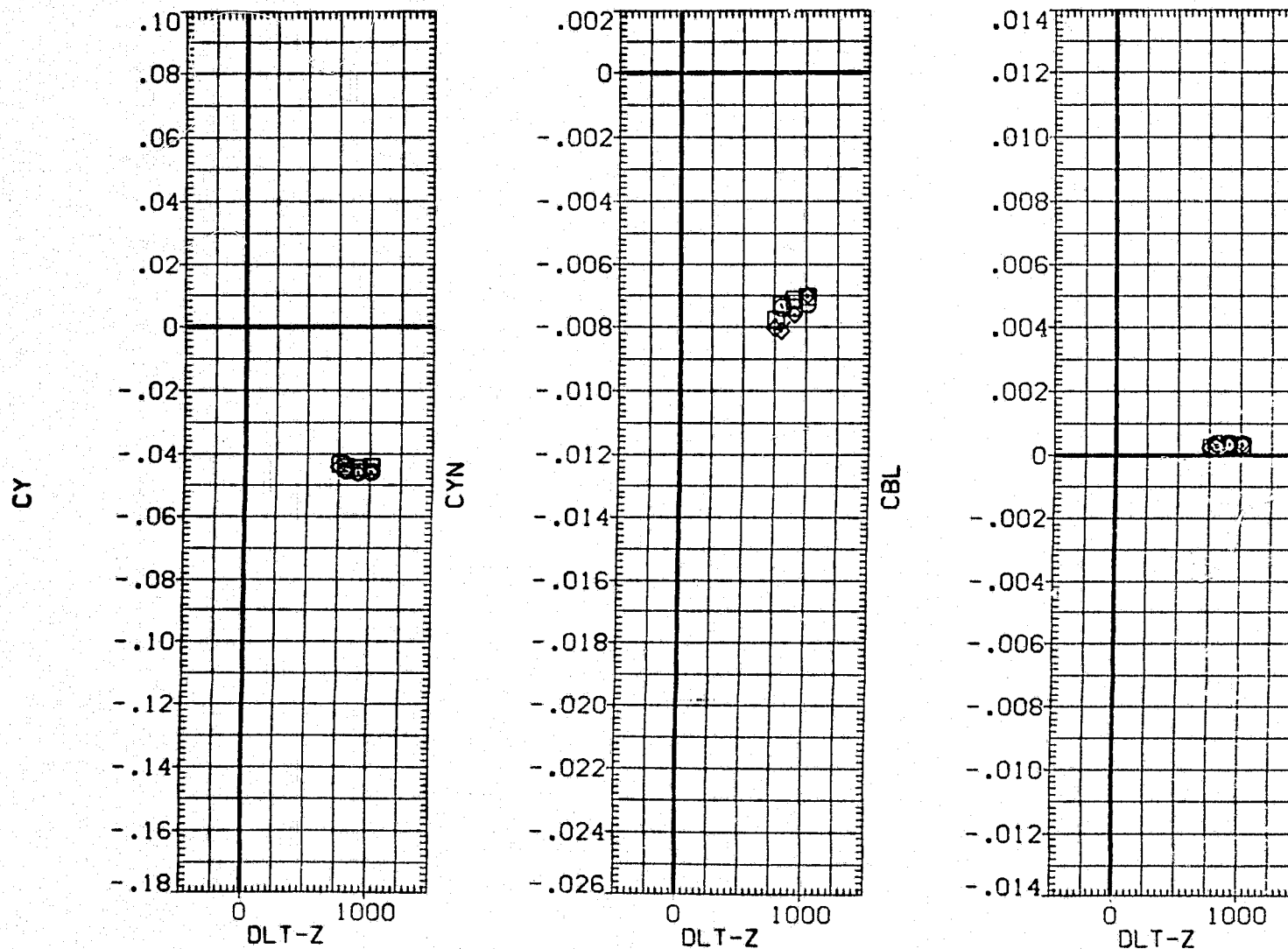


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR177)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.494	.000	ALPHA	5.000
□	200.630	.000	DLTALF	.000
		.000	MACH	7.980
		.000	ELEVON	.000
		24.000	PO	300.000
			GRID	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

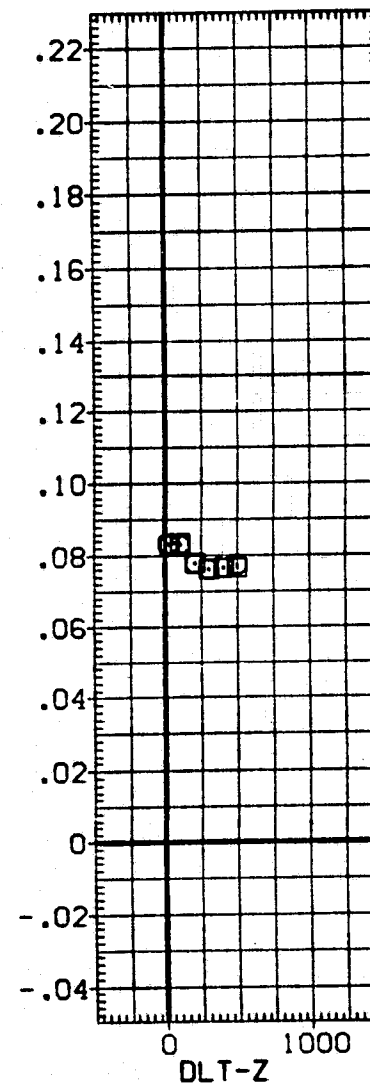
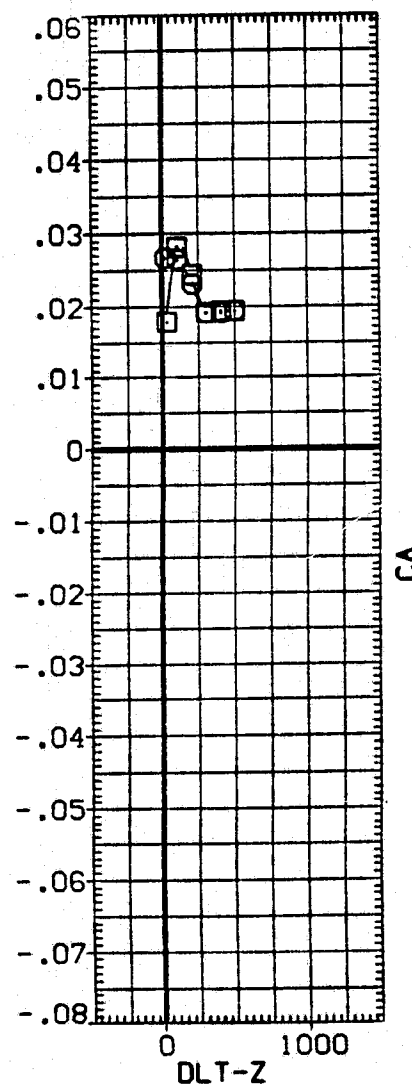
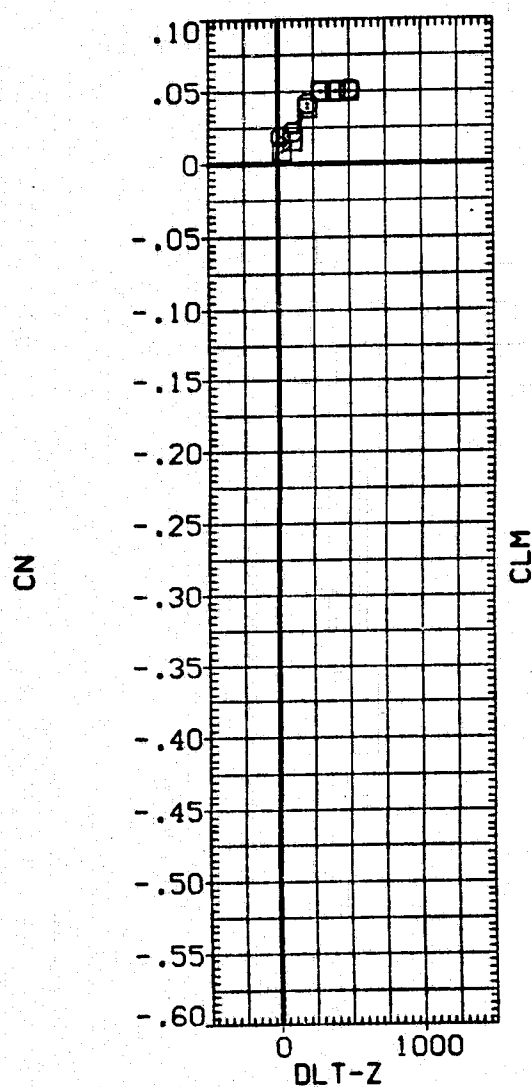


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR177)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.494	.000	ALPHA	5.000
□	200.630	.000	DLTALF	.000
		.000	MACH	7.980
		.000	ELEVON	.000
		24.000	PG	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

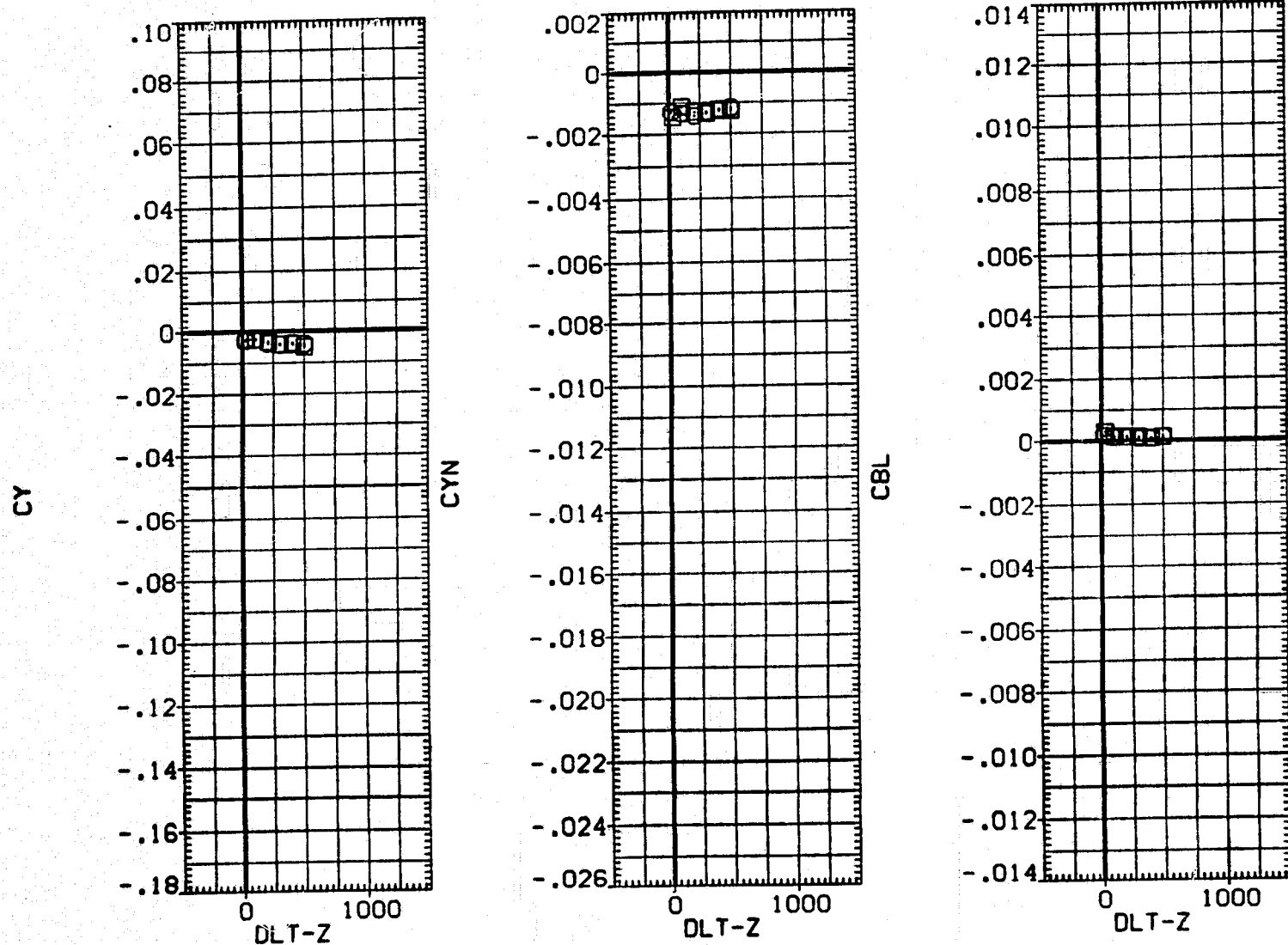
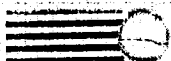


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)



AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR178)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.472	BETA	.000	DLTALF	-5.000
□	200.400	DLTBT	.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	24.000	PG	300.000

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. YT
SCALE	.0100	

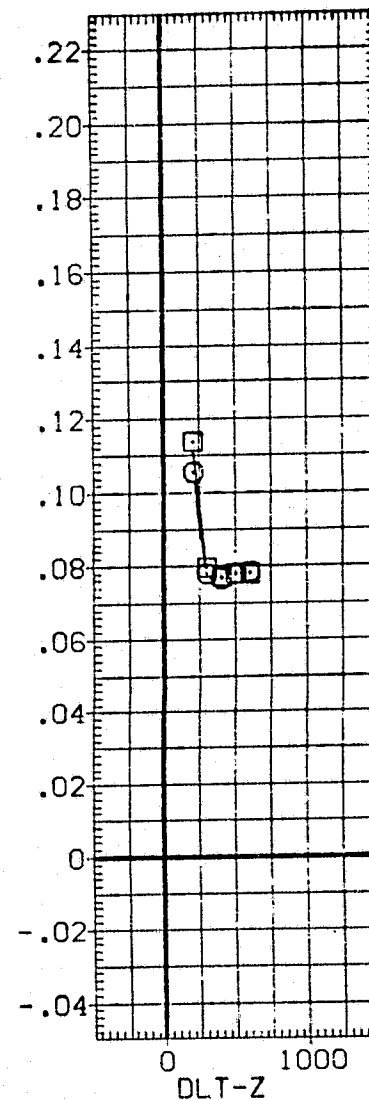
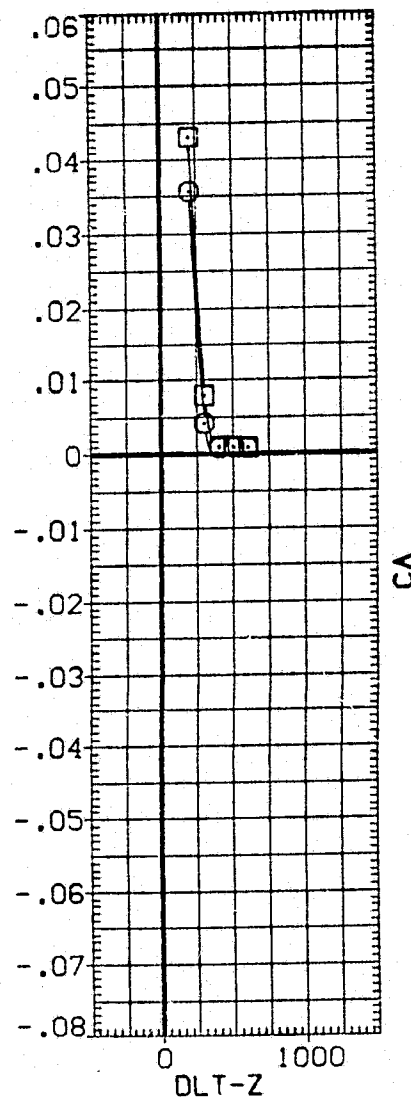
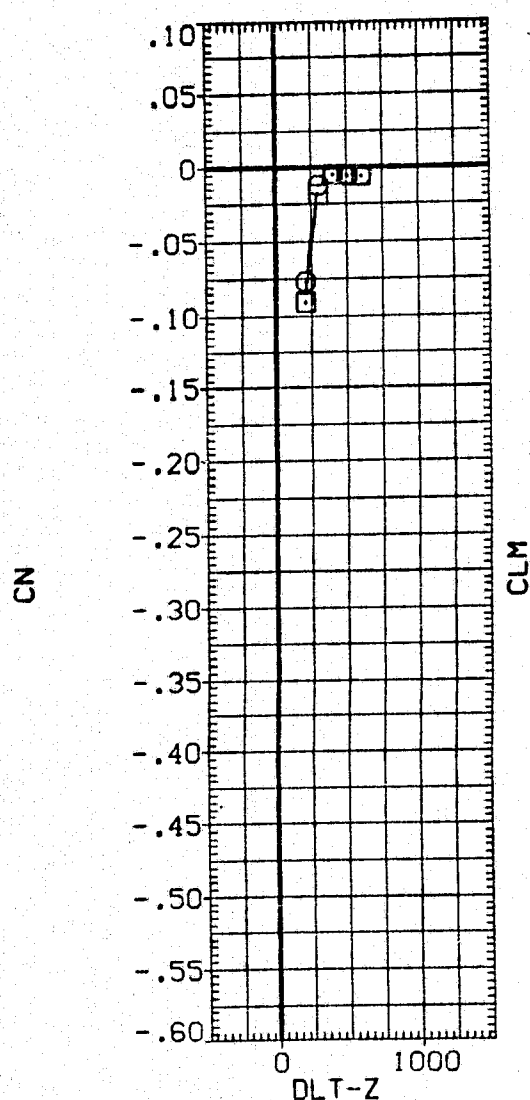


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR178)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.472	.000	DLTALF	5.000	
□	200.400	.000	MACH	-5.000	
		.000	ELEVON	7.980	
		.000	P0	.000	
		24.000		300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

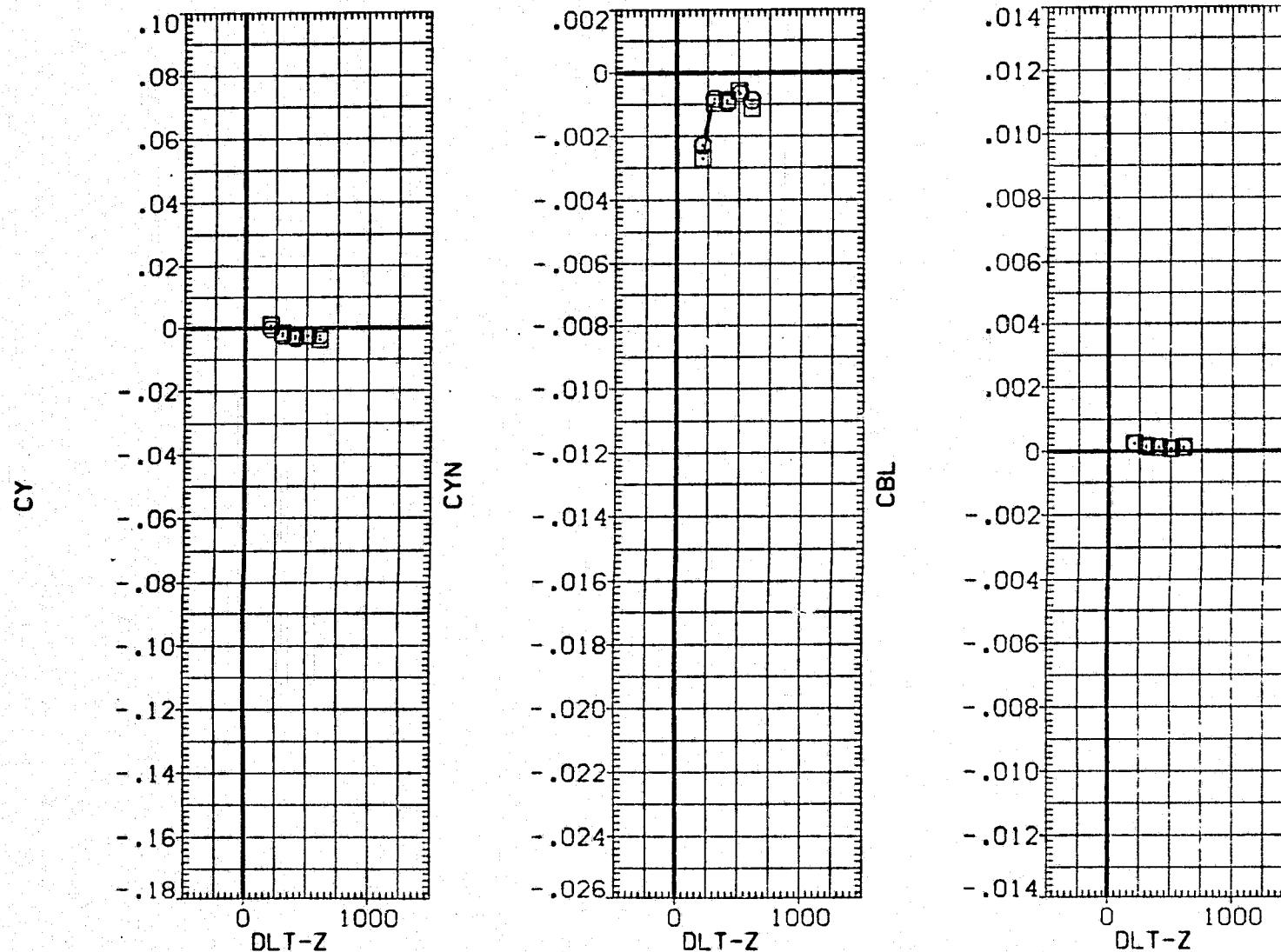


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR179)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLTALF	ALPHA
○	.592	.000	.000	5.000	-10.000	
□	200.330	BETA	.000		7.980	
◇	400.360	DLTBT	.000	MACH	.000	
		ATLRON	.000	ELEVON	300.000	
		GRID	24.000	PO		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

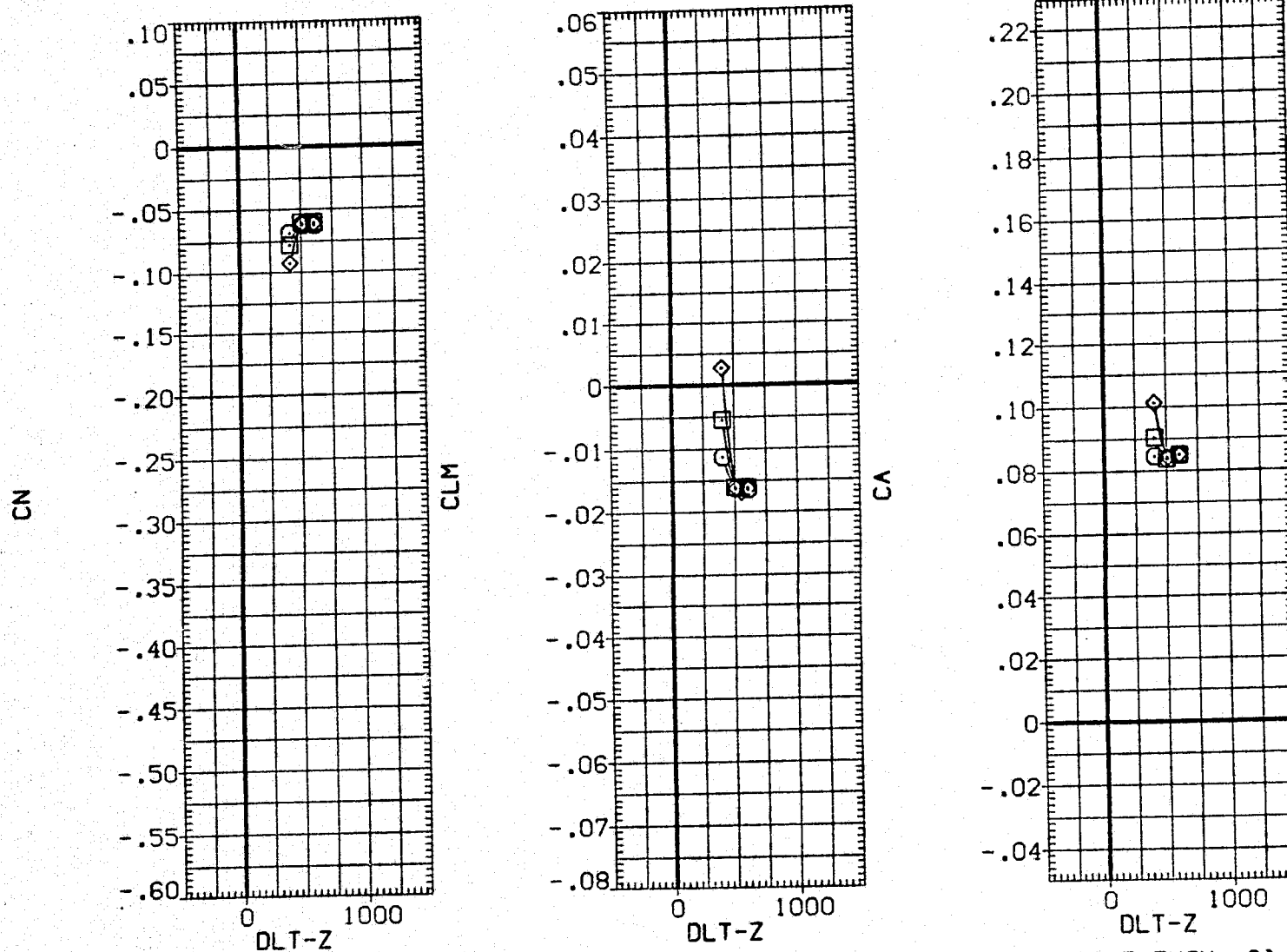


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR179)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.592	.000	5.000	-10.000	7.980	.000
□	200.330	.000				
◇	400.360	.000				
		24.000	300.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

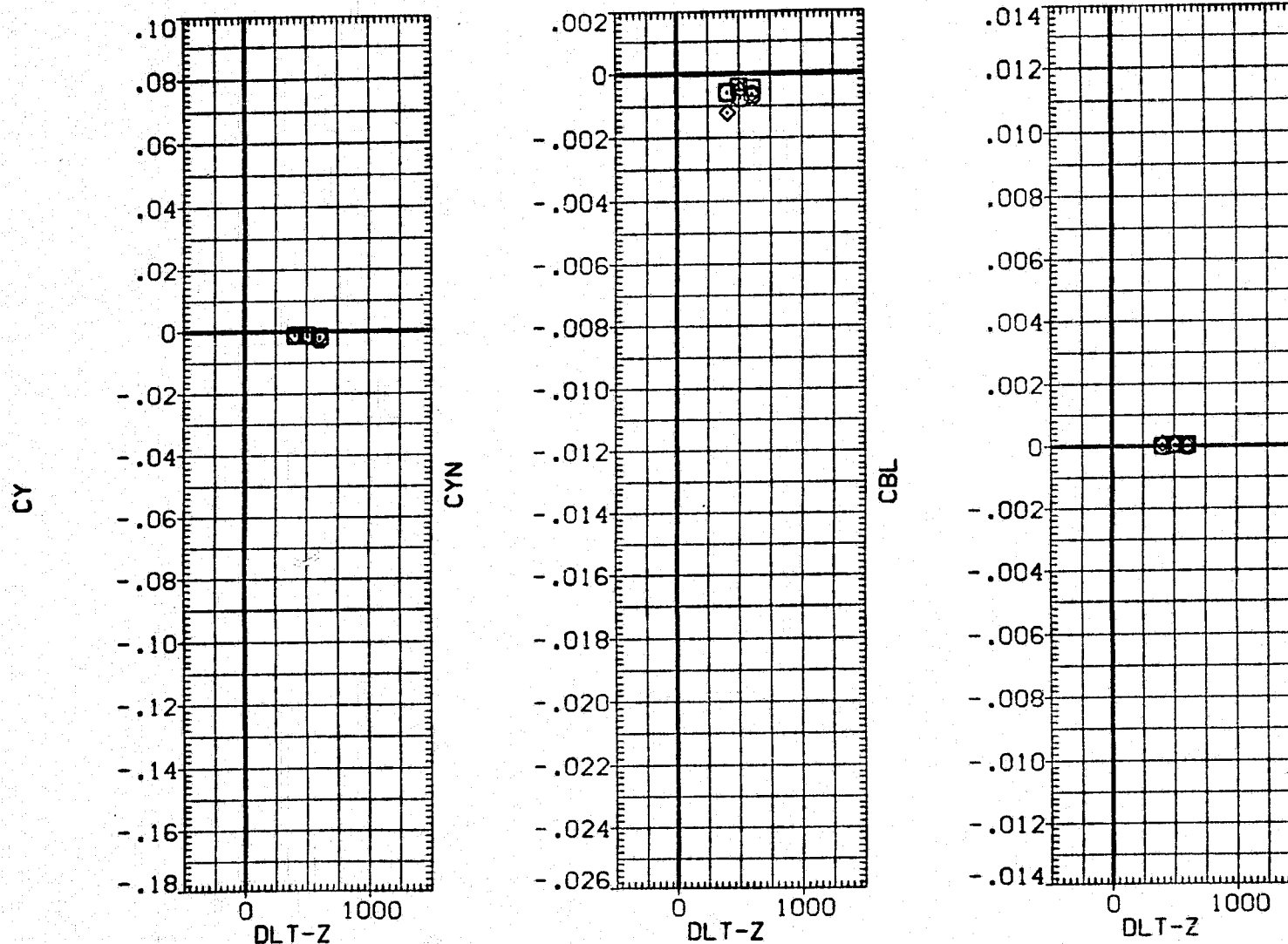


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR180)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.560	.000	ALPHA	5.000
□	200.510	.000	DLTALF	-15.000
◇	400.420	.000	MACH	7.980
		.000	ELEVON	.000
		24.000	PG	300.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

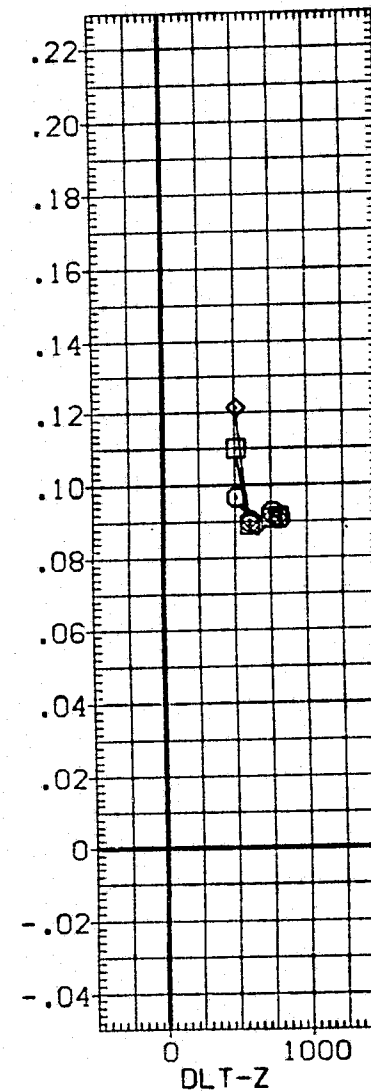
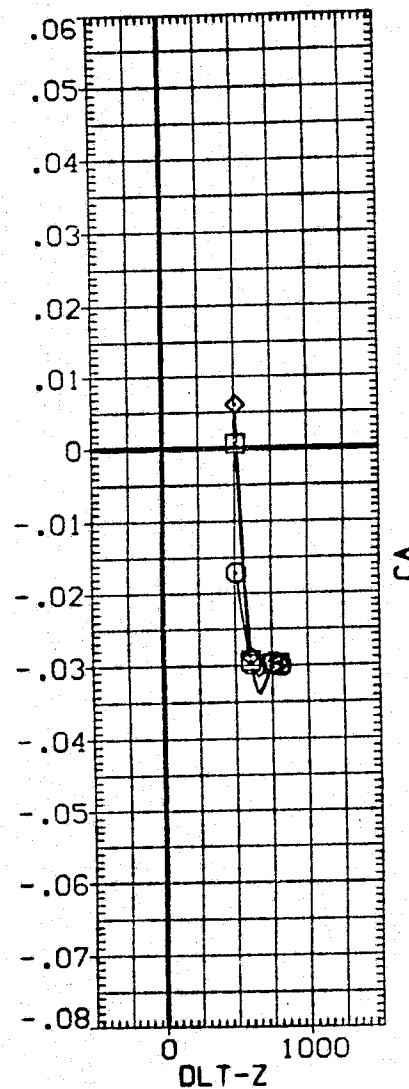
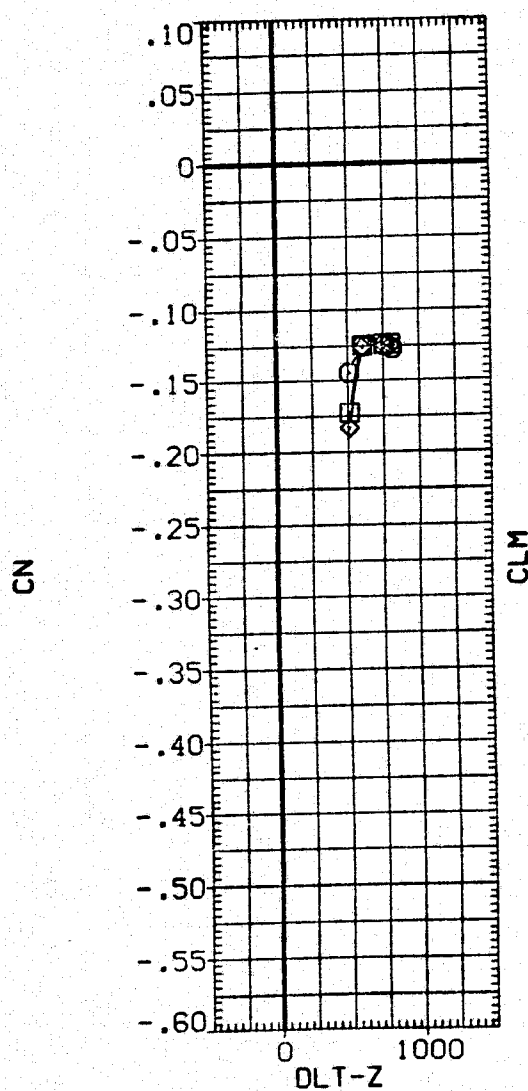


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR180)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
◇	.560	BETA	.000	DLTALF	-15.000
□	200.510	DLTBT	.000	MACH	7.980
◇	400.420	DLTBT	.000	ELEVON	.000
		ATLRON	.000	PO	300.000
		GRID	24.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

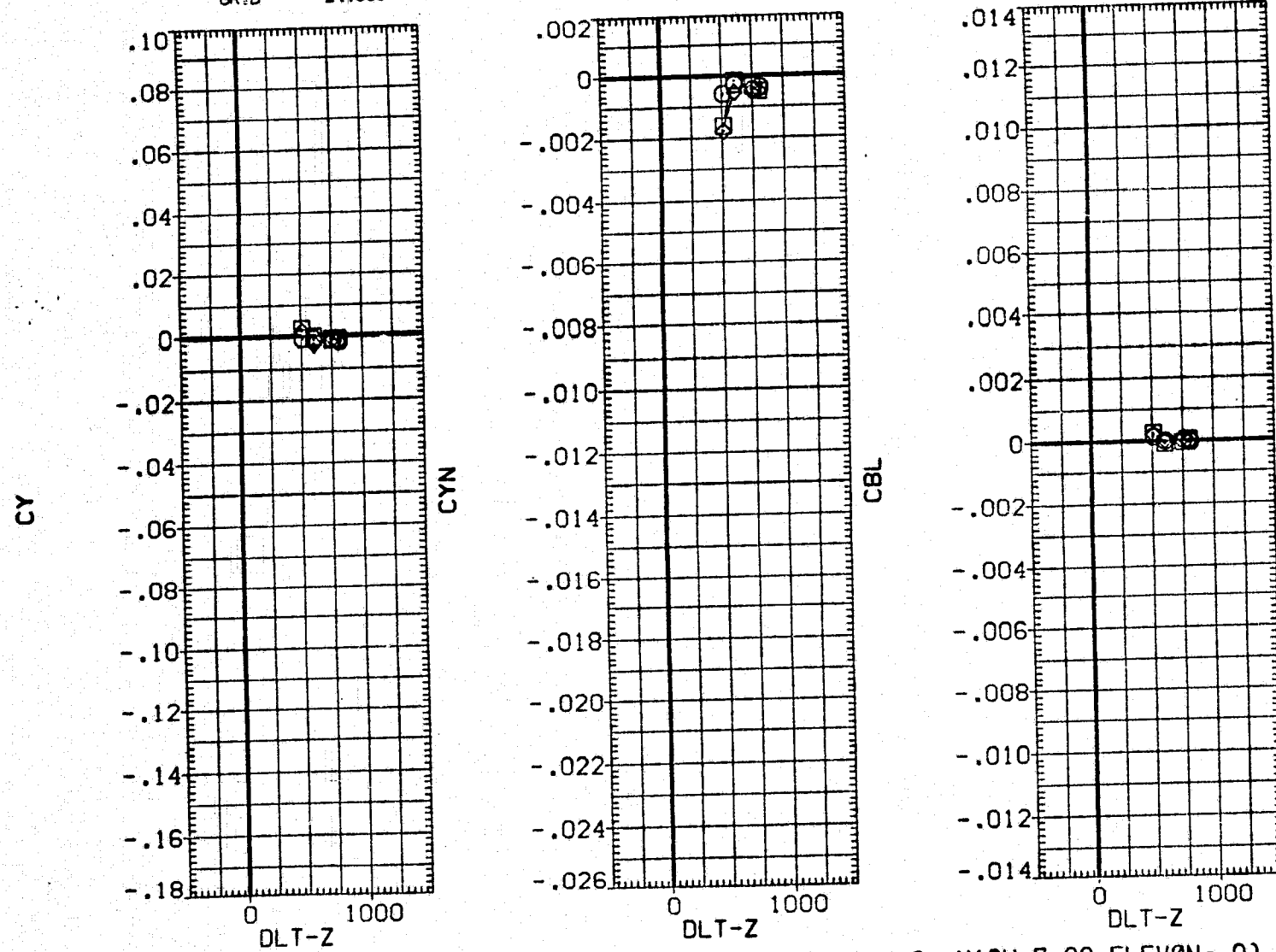


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR182)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.531		ALPHA	5.000
□	200.410	BETA	.000	DLTALF -20.000
◇	400.540	DLTBTA	.000	MACH 7.980
		ATLRON	.000	ELEVON .000
		GRID	24.000	PO 300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

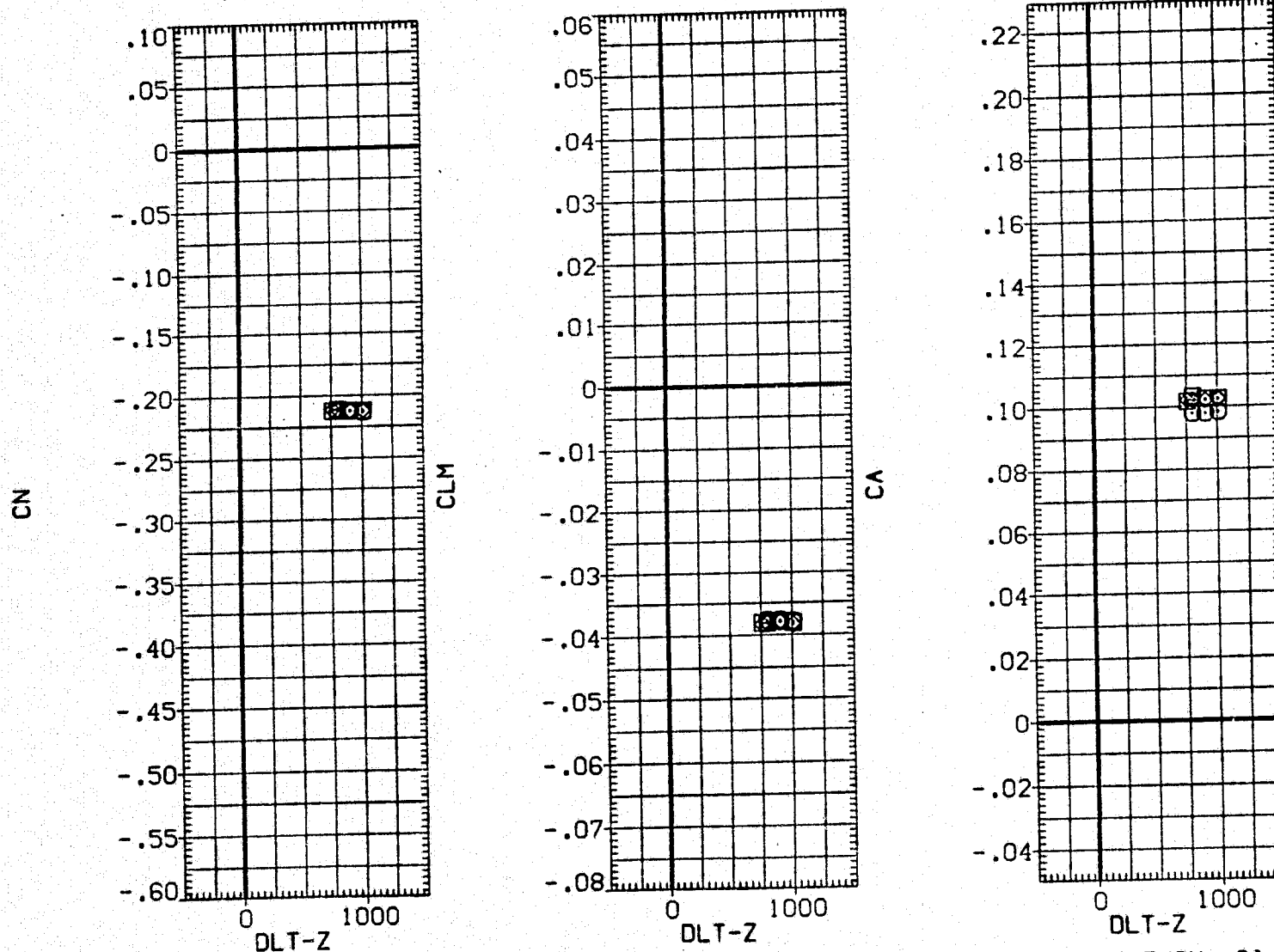


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR182)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.531	.000	DLTALF	5.000
□	200.410	.000	MACH	-20.000
◇	400.540	.000	ELEVON	7.980
		.000	PG	.000
		24.000		300.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

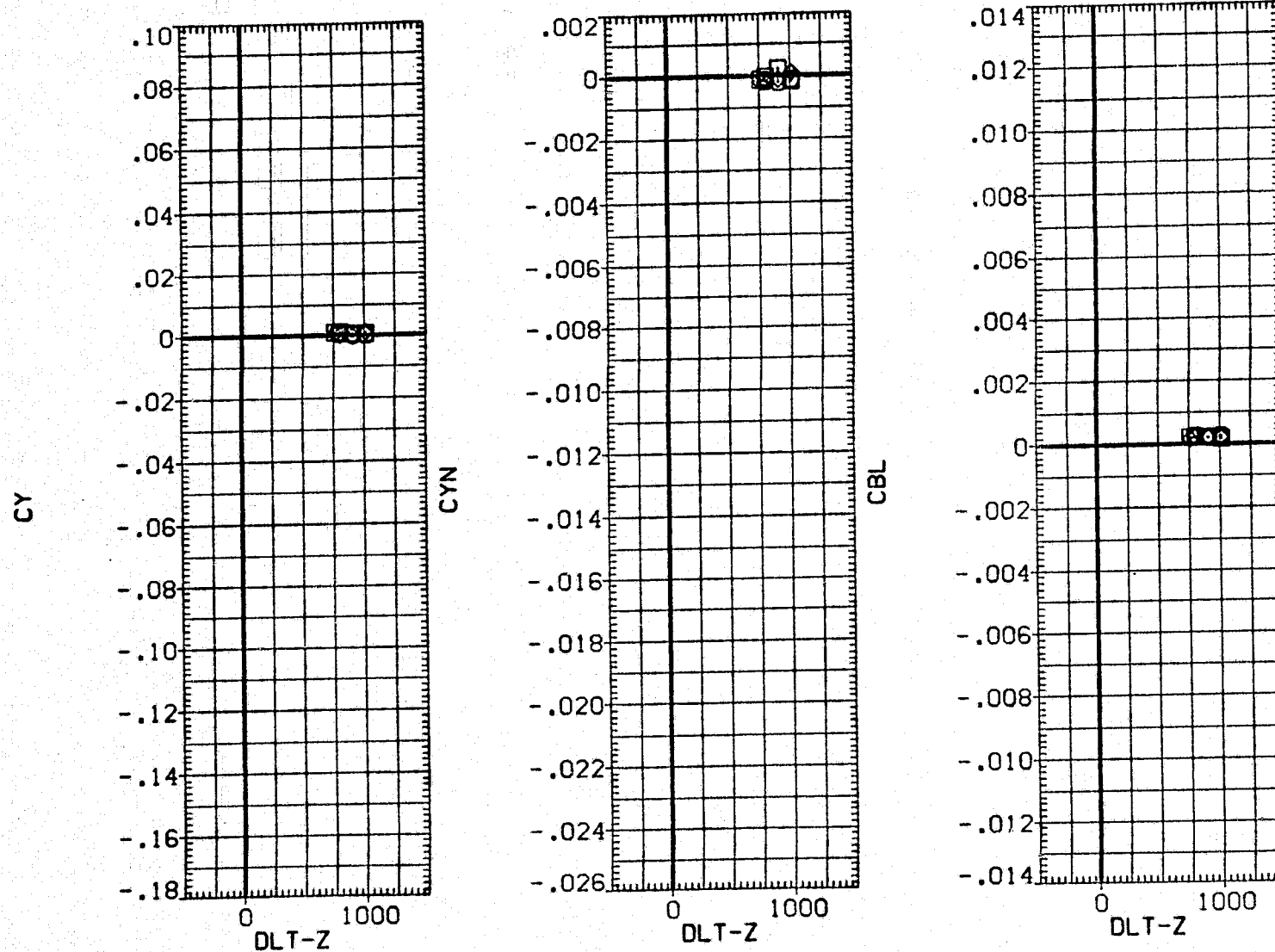


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR137)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.558	.000	5.000	.000	7.980	.000
□	200.630	BETA	3.000	DLTALF	7.980	.000
		DLTBT	.000	ELEVON	.000	420.000
		AILRON	.000	P0	420.000	
		GRID	25.000			

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

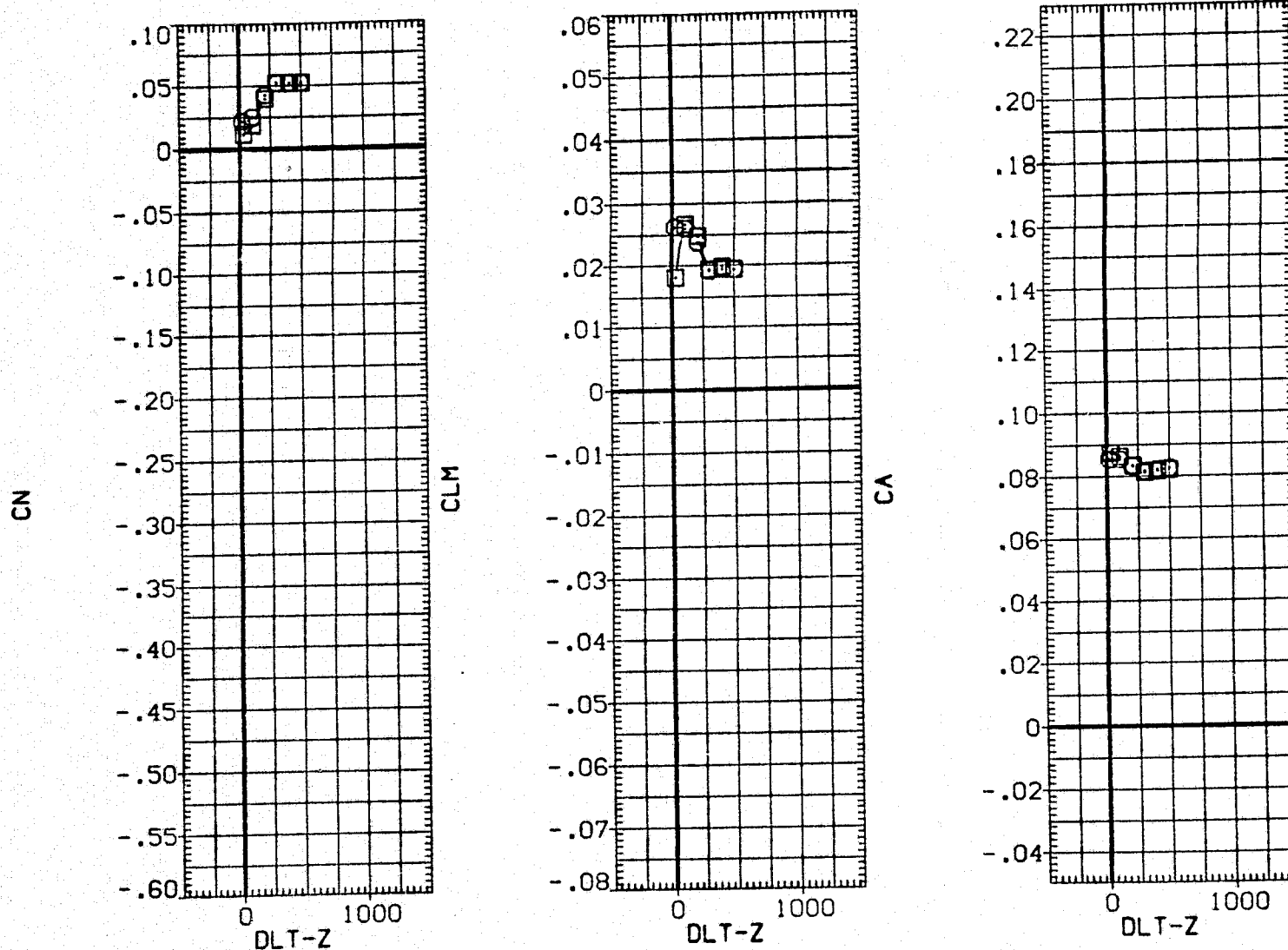


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR137)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
□	.558	.000	DLTALF	5.000
○	200.630	BETA 3.000	MACH	.000
		DLTBTA .000	ELEVON	7.980
		AILRON .000	PG	.000
		GRID 25.000		420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

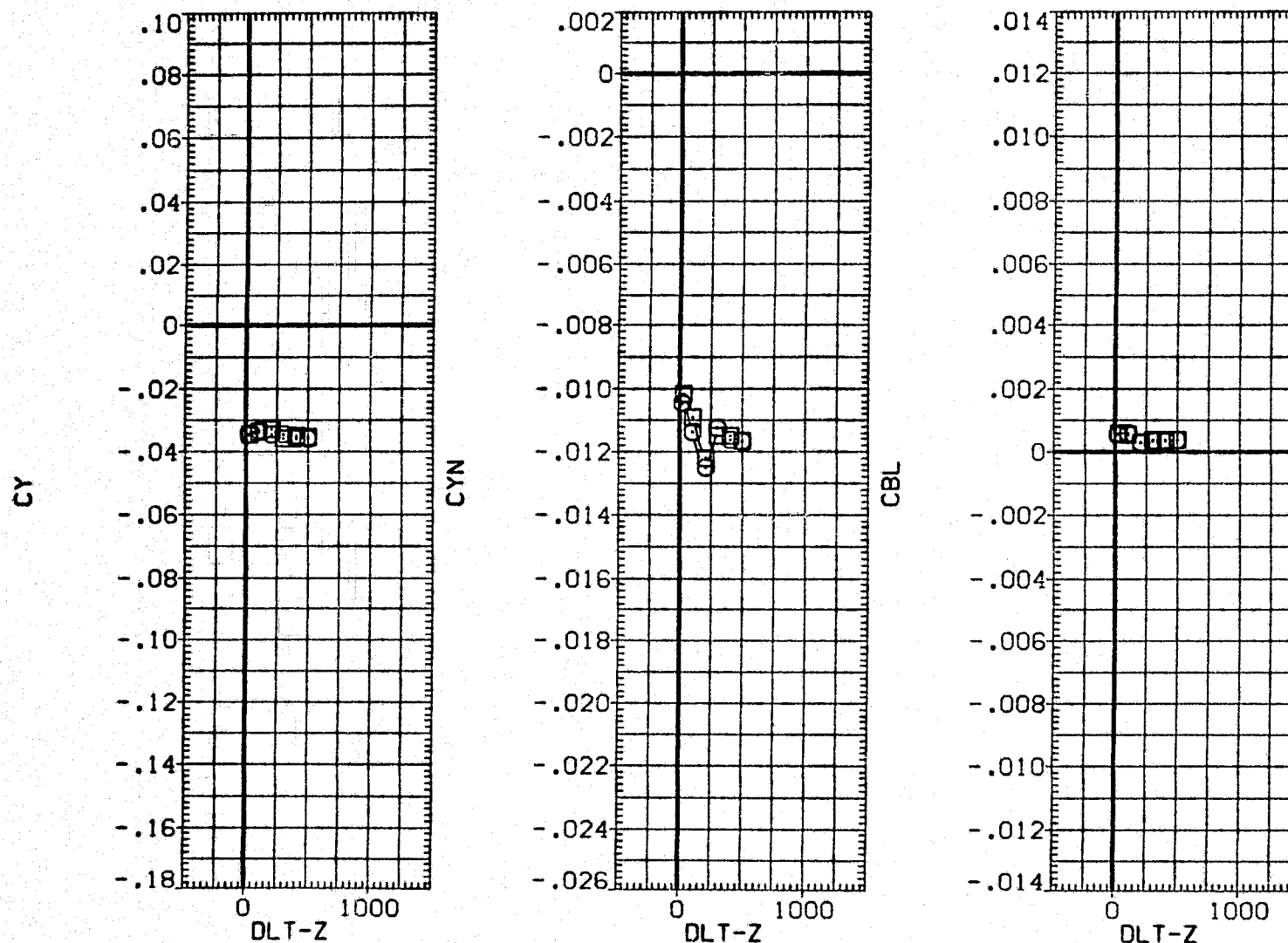


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR138)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.595	.000	ALPHA	5.000
□	200.580	3.000	DLTALF	-5.000
		.000	MACH	7.980
		.000	ELEVON	.000
		25.000	P0	420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

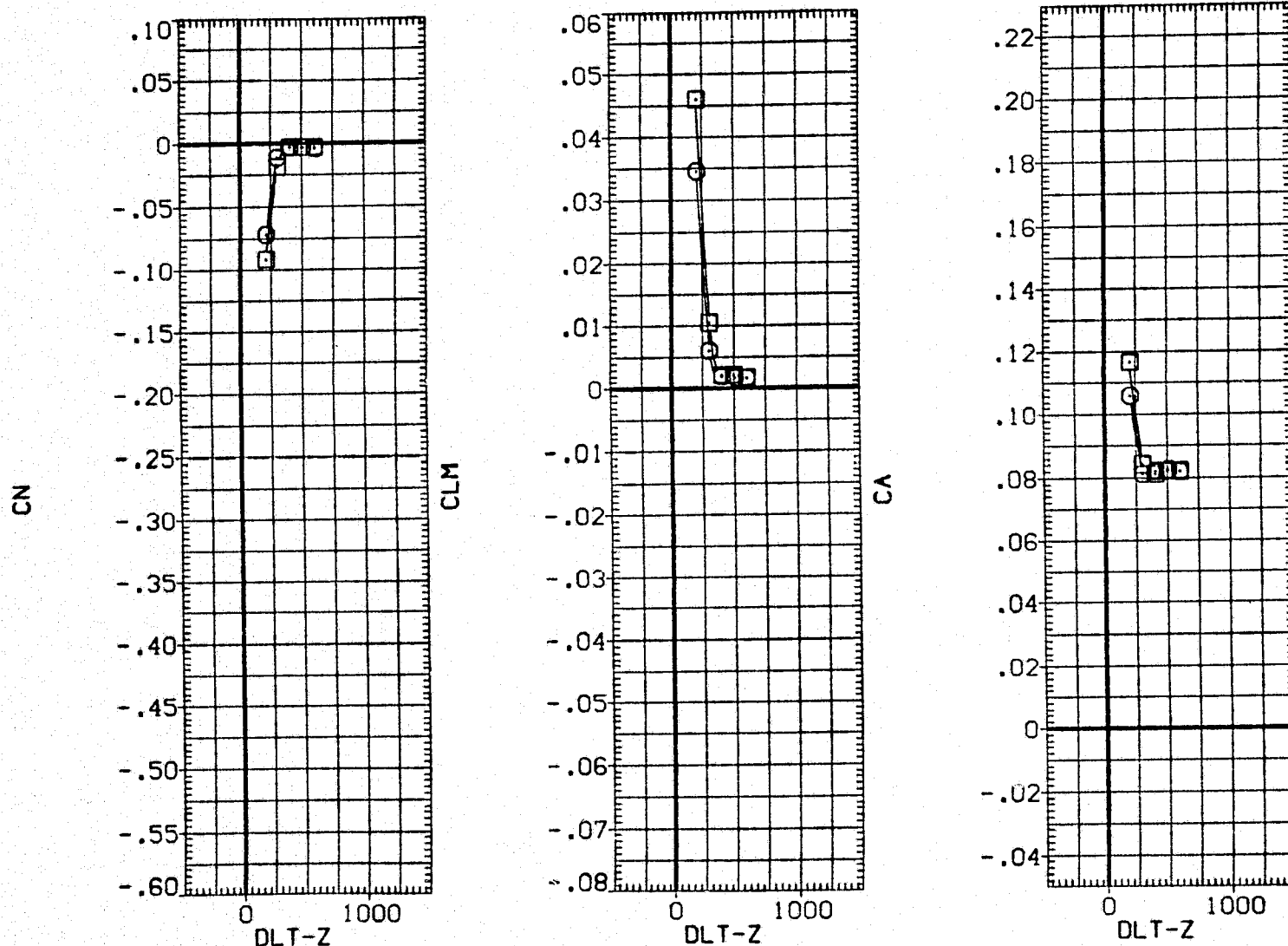


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR138)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.595	.000	ALPHA	5.000
□	200.580	3.000	DLTALF	-5.000
		.000	MACH	7.980
		.000	ELEVON	.000
		25.000	P0	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

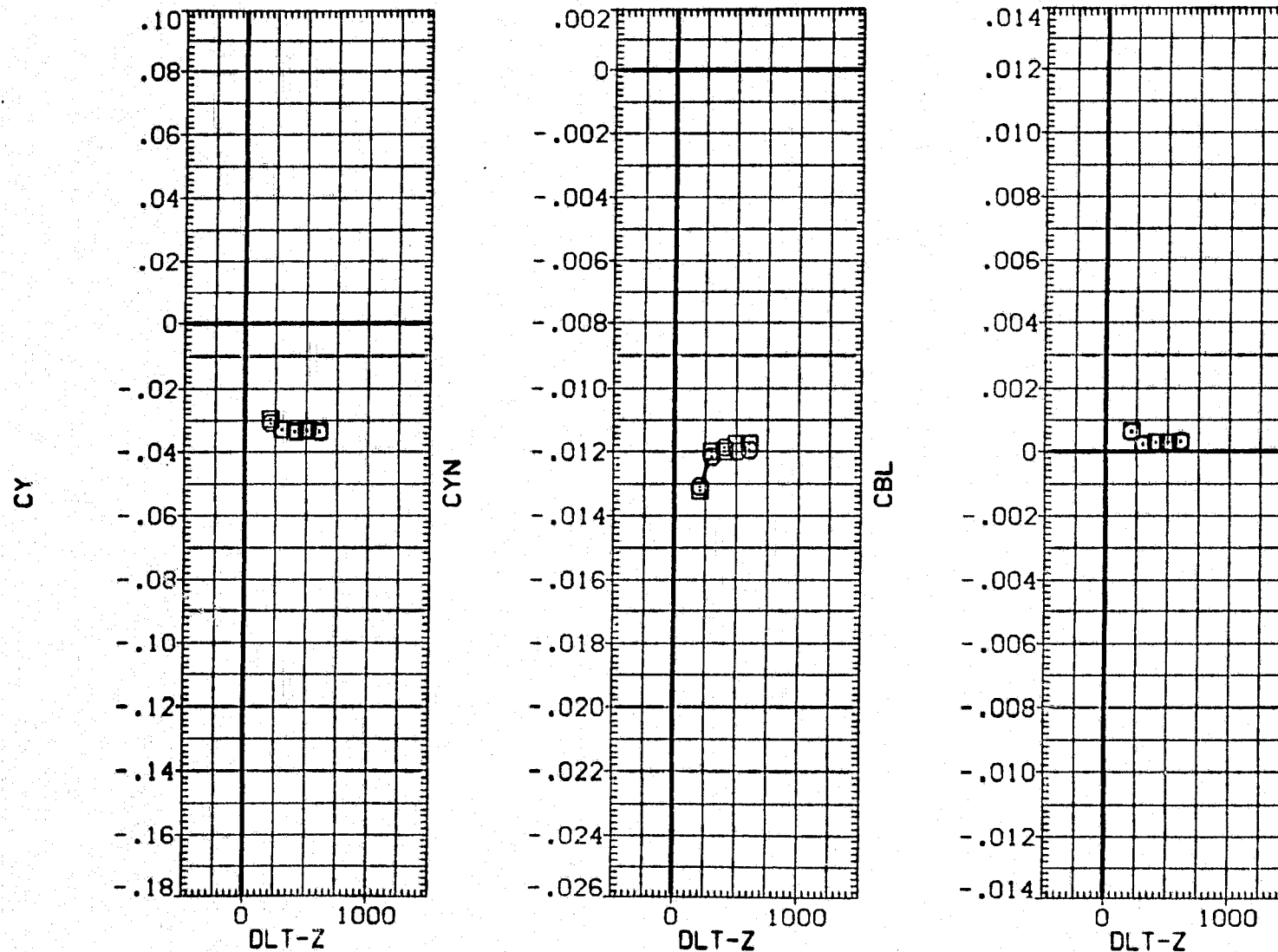


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR139)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
◇	.543	.000	5.000	-10.000
□	200.610	.000	3.000	7.980
○	400.430	.000	1.000	.000
		AILRON	ELEVON	
		GRID	PG	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

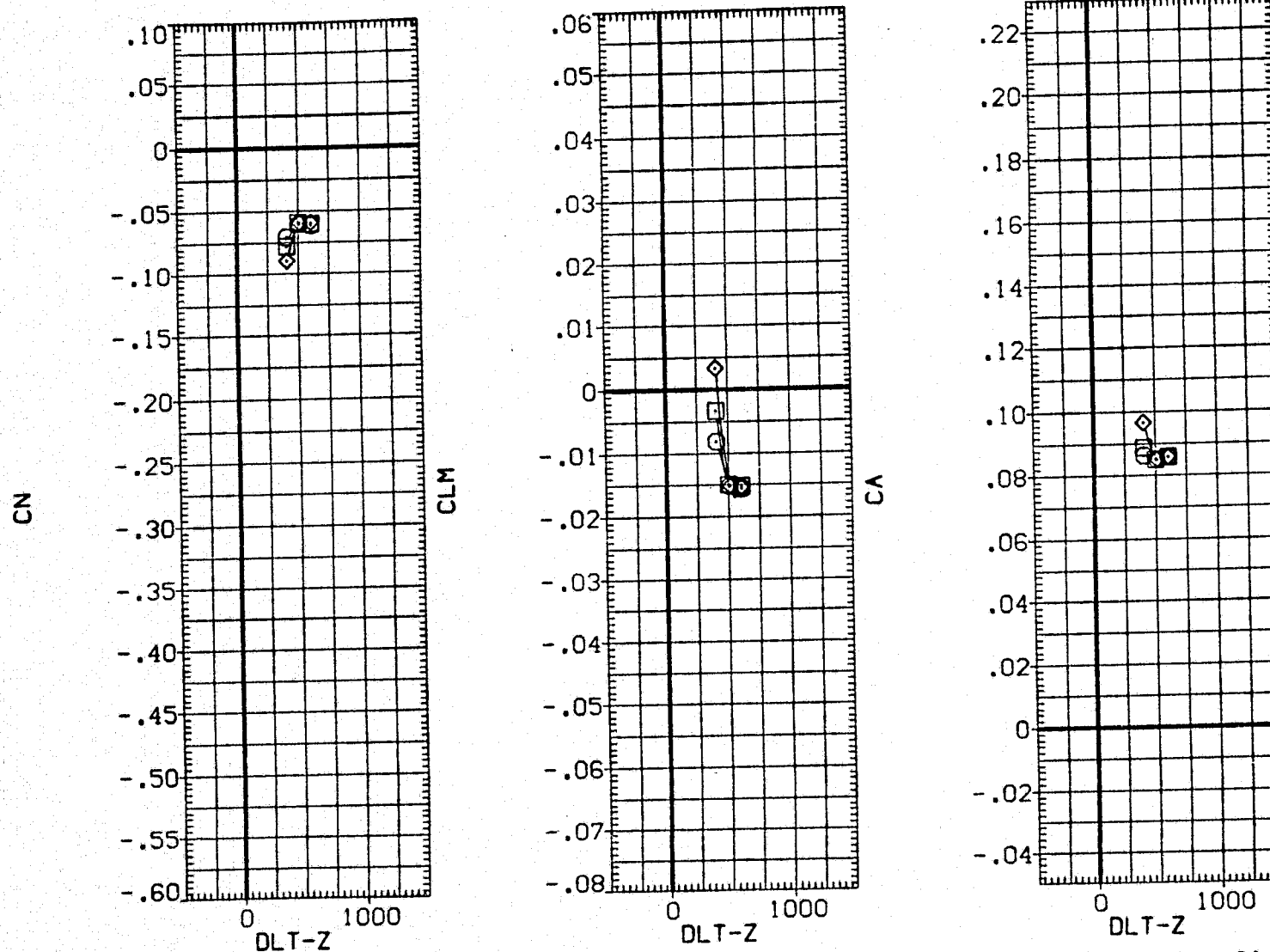


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR139)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.543	.000		5.000
□	200.610	3.000	DLTALF	-10.000
◇	400.430	.000	MACH	7.980
		.000	ELEVON	.000
		25.000	PO	420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

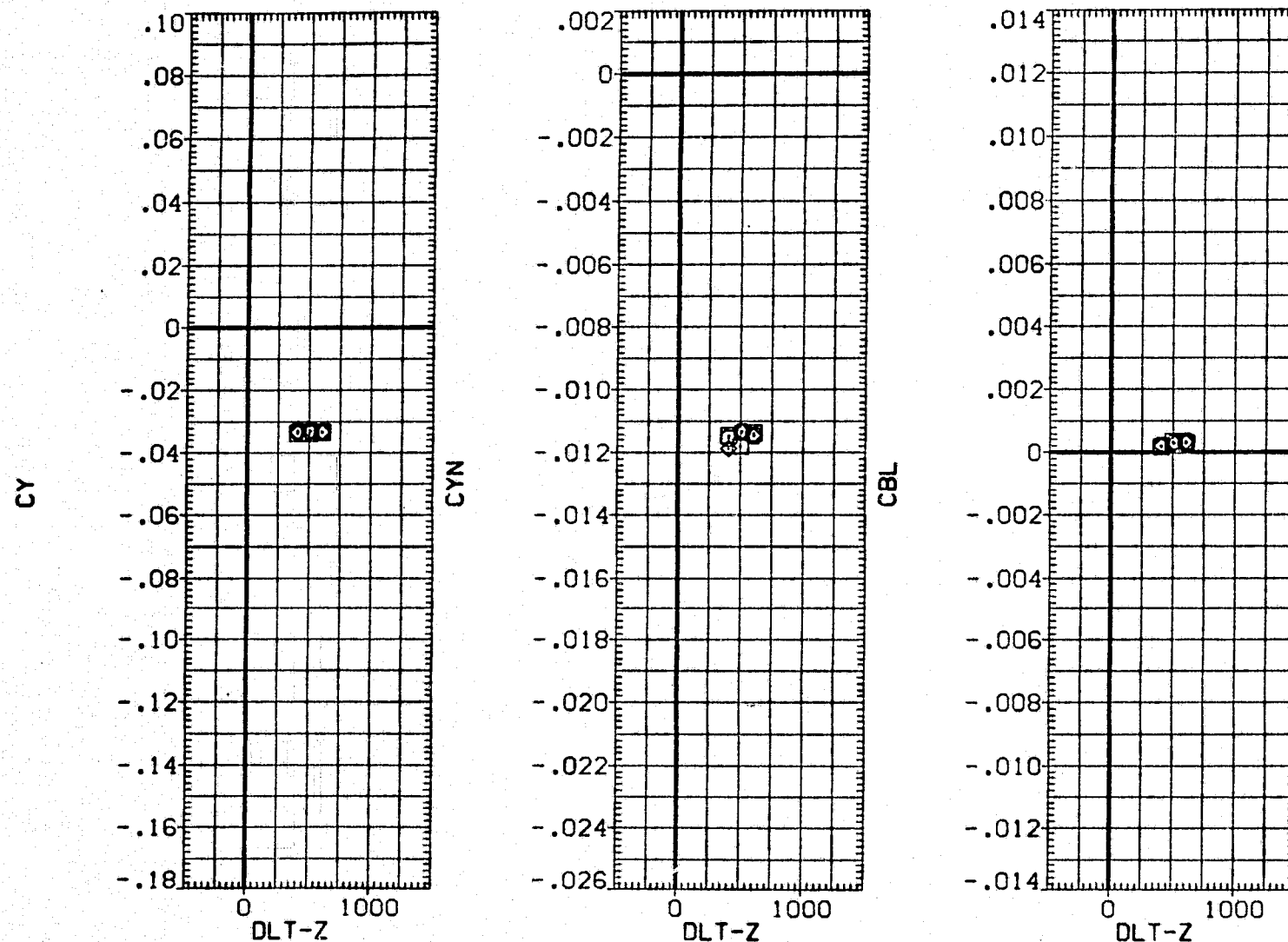


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR140)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.627	.000	ALPHA	5.000
□	200.440	3.000	DLTALF	-15.000
◇	400.280	.000	MACH	7.980
		.000	ELEVON	.000
		25.000	P0	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

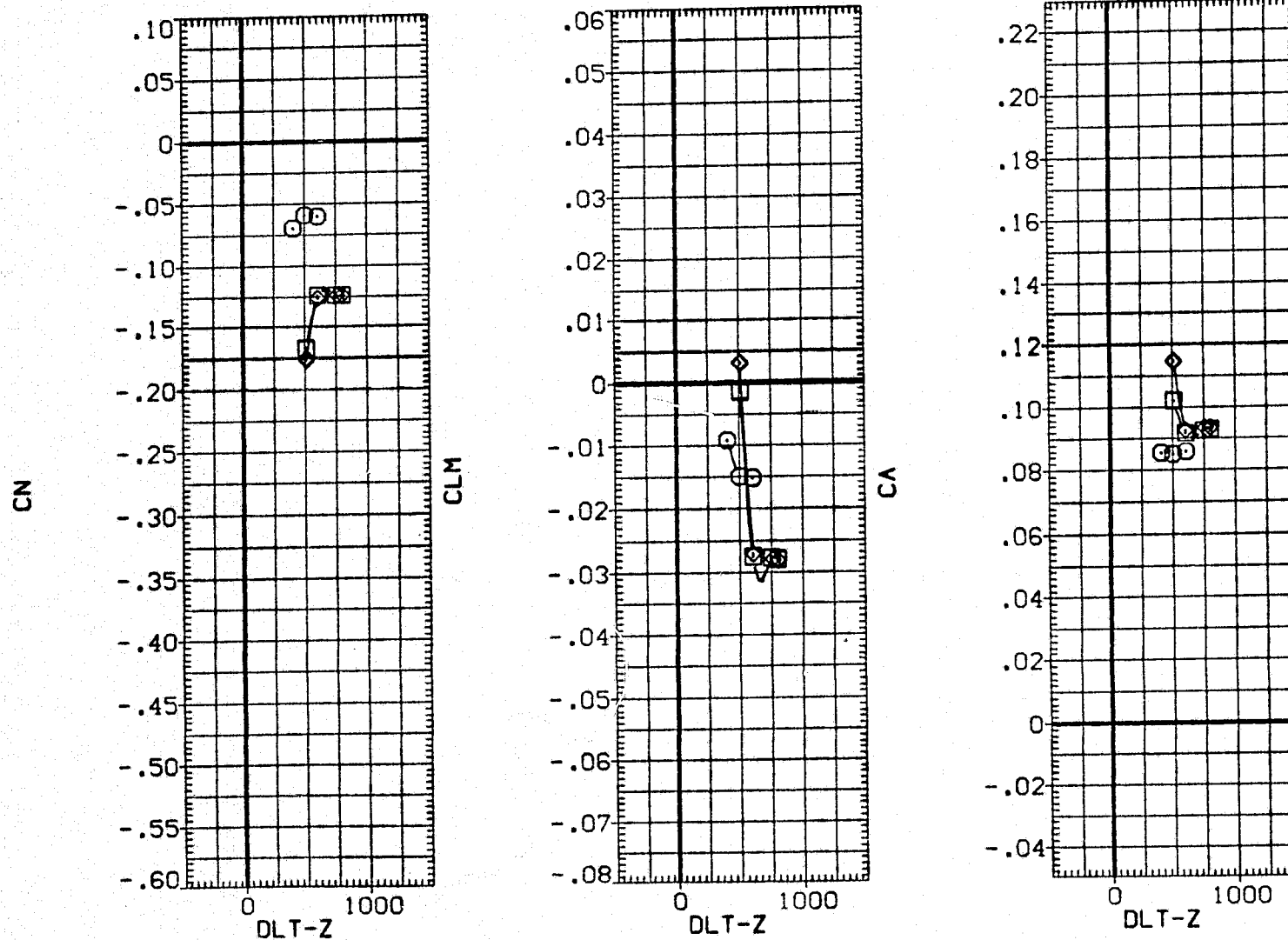


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR140)

SYMBOL		DLT-X	PARAMETRIC VALUES			
○		.627	DLT-Y	.000	ALPHA	5.000
□		200.440	BETA	3.000	DLTALF	-15.000
◇		400.280	DLTBTA	.000	MACH	7.980
			AILRON	.000	ELEVON	.000
			GRID	25.000	PD	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

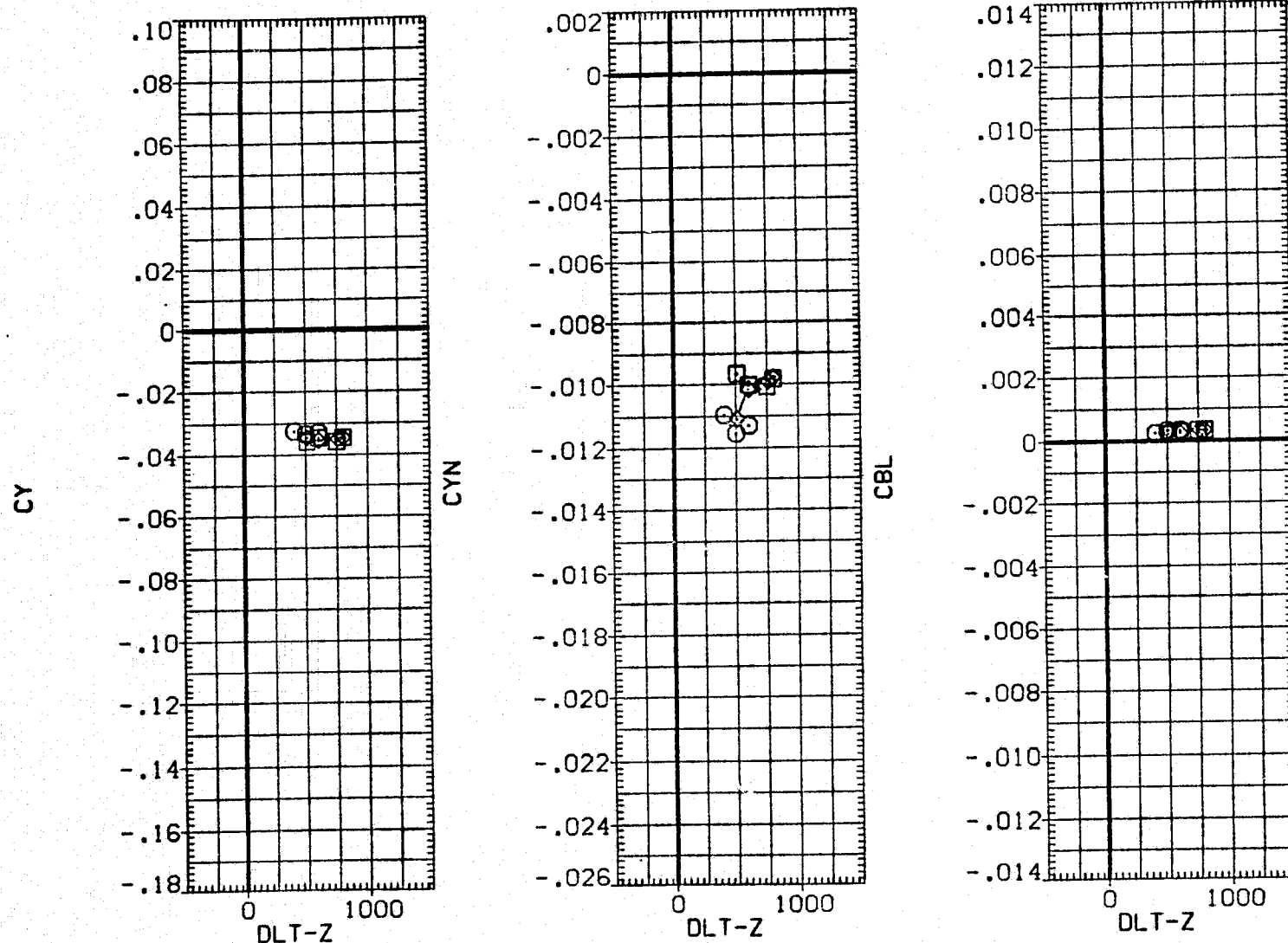


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR142)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
○	.541	.000	ALPHA	5.000	
□	200.490	BETA	3.000	DLTALF	-20.000
◇	400.560	DLTBT	.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	25.000	PD	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

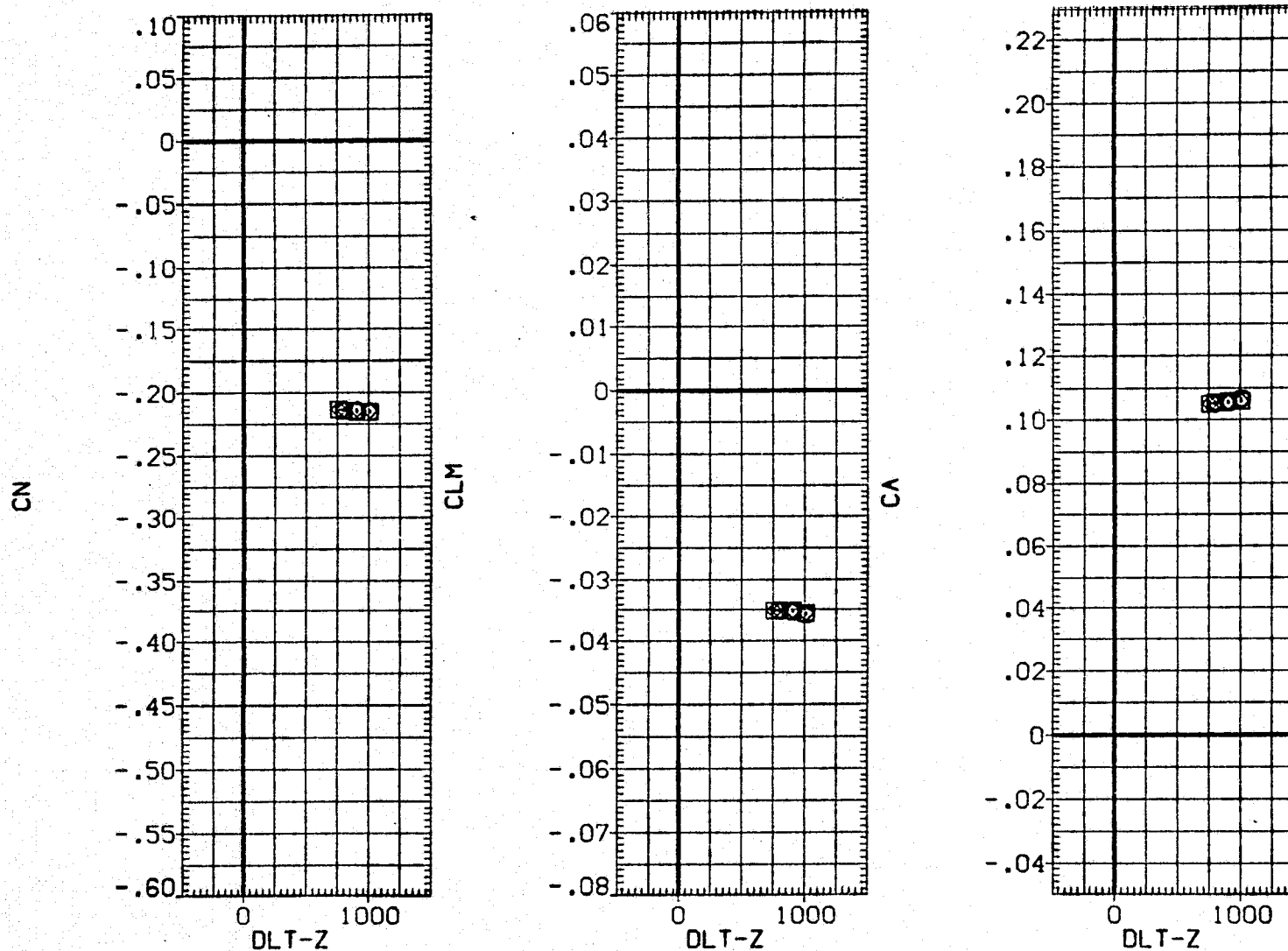


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR142)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Z	DLT-Y	DLT-Z	DLT-Y
◇	541	DLT-Y	.000	ALPHA	5.000	
□	200.490	BETA	3.000	DLTALF	-20.000	
◇	400.560	DLTBTA	.000	MACH	7.980	
		AILRON	.000	ELEVON	.000	
		GRID	25.000	P0	420.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

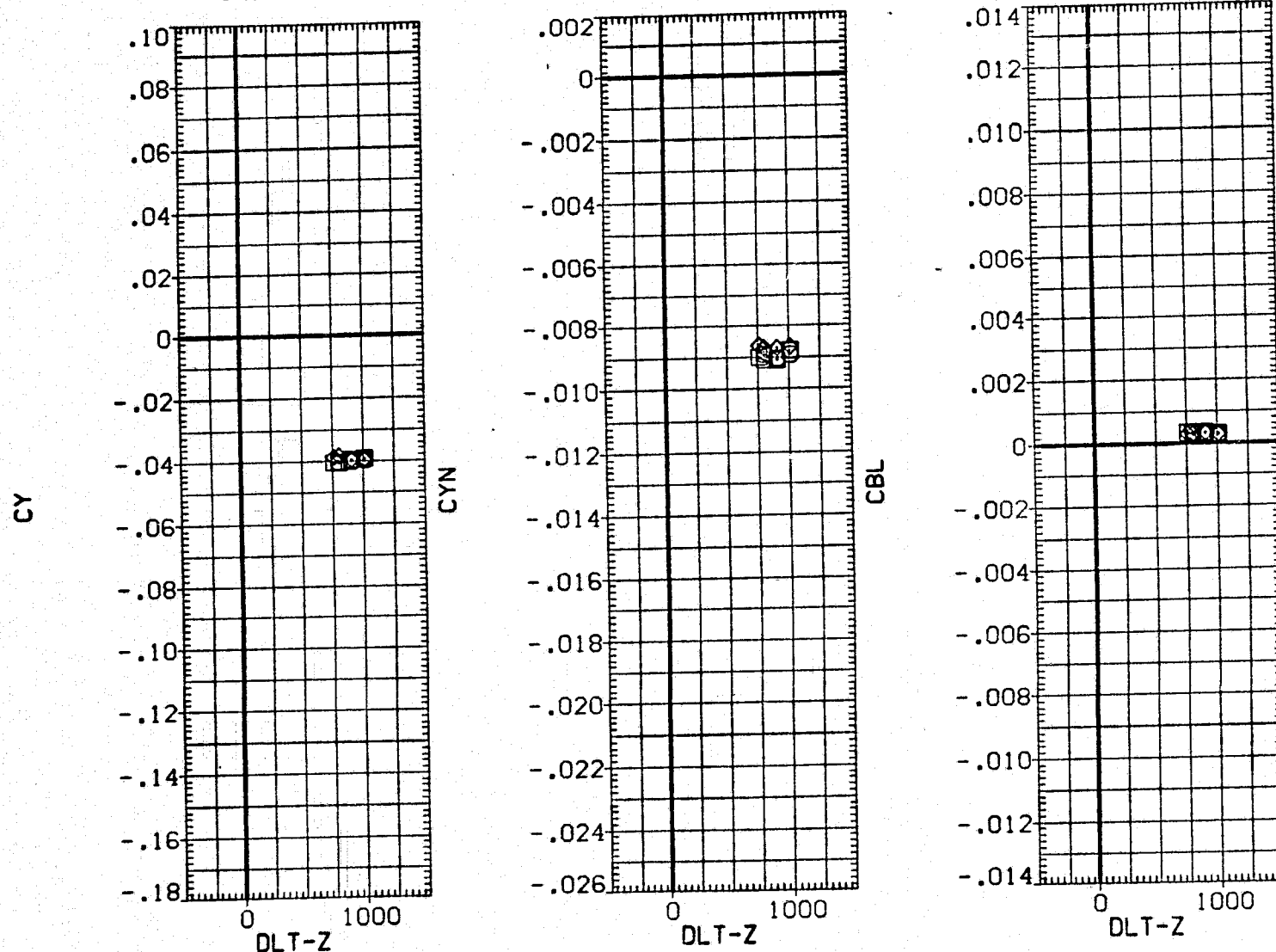


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR171)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	ALPHA	
○	.412	BETA	.000	-5.000
□	200.460	DLTBT	.000	DLTALF
		DLTBT	.000	MACH
		AILRON	.000	ELEVON
		GRID	8.000	PO
				300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

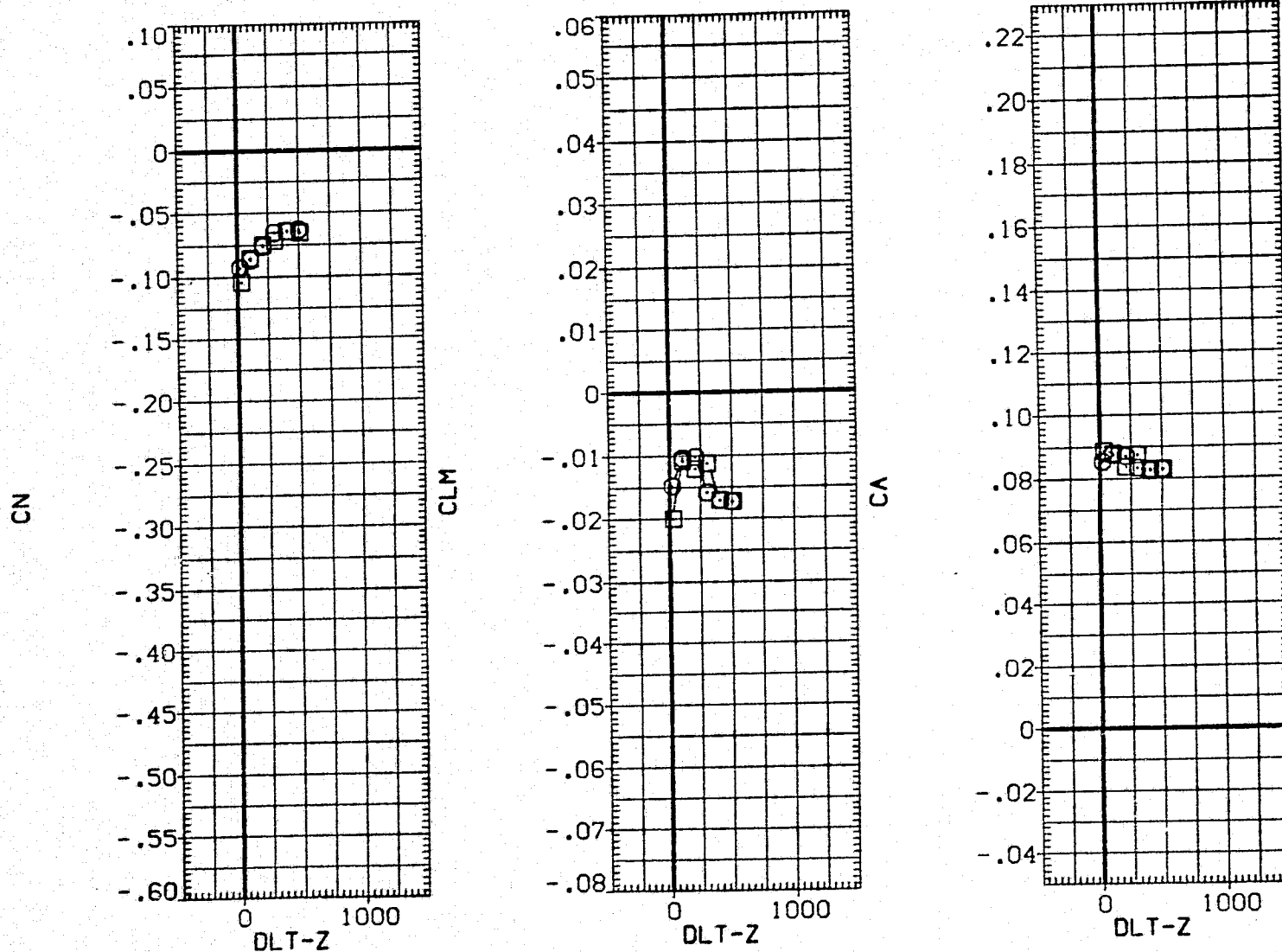


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR171)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.412	.000	ALPHA	-5.000	
□	200.460	.000	DLTALF	.000	
		.000	MACH	7.980	
		.000	ELEVON	.000	
		.000	PG	300.000	
		8.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

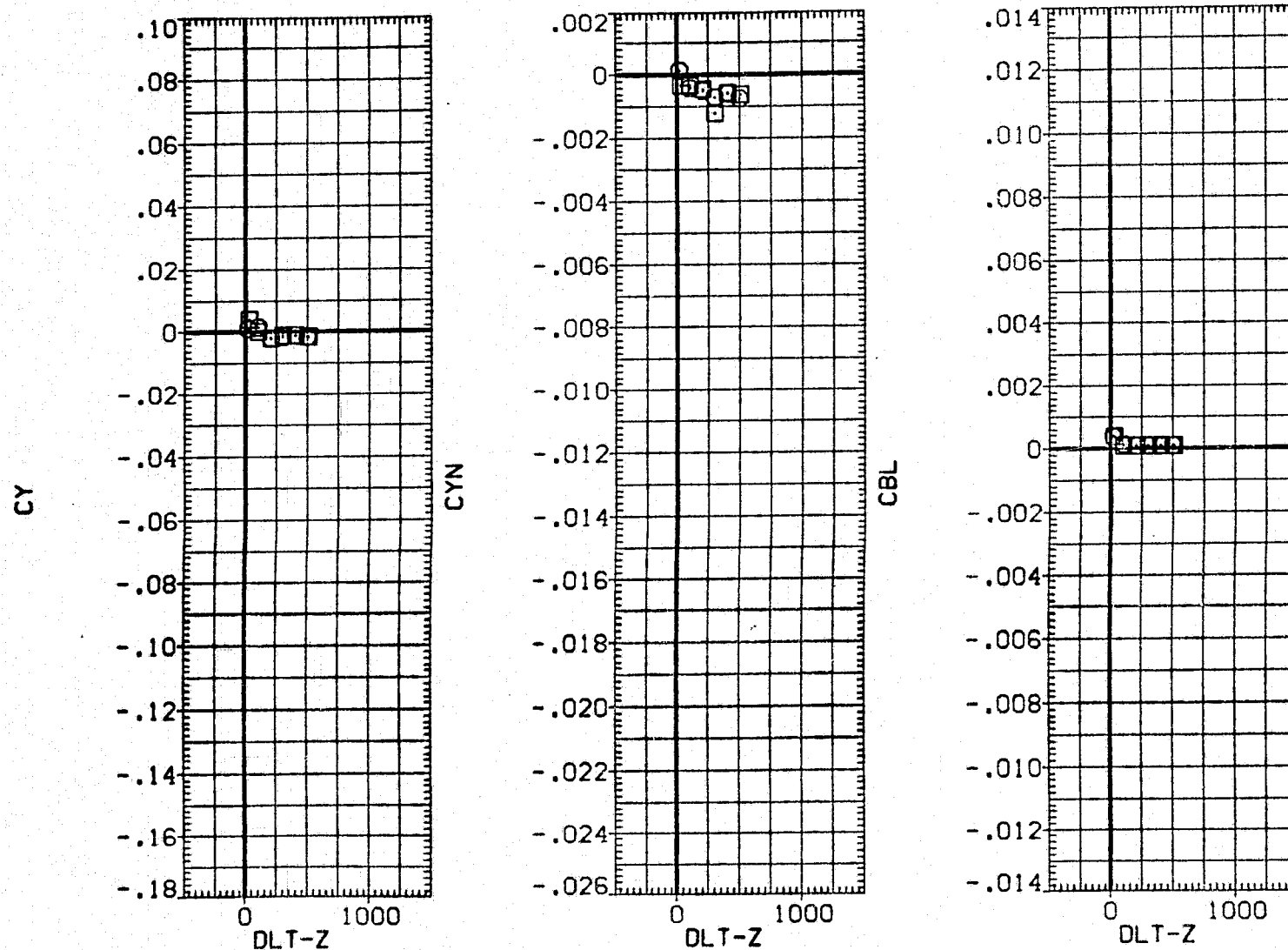


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR172)

SYMBOL	DLT-X		PARAMETRIC VALUES			
○	.566	DLT-Y	.000	ALPHA	-5.000	
□	200.450	BETA	.000	DLTALF	-5.000	
		DLTBT	.000	MACH	7.980	
		AILRON	.000	ELEVON	.000	
		GRID	8.000	PO	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

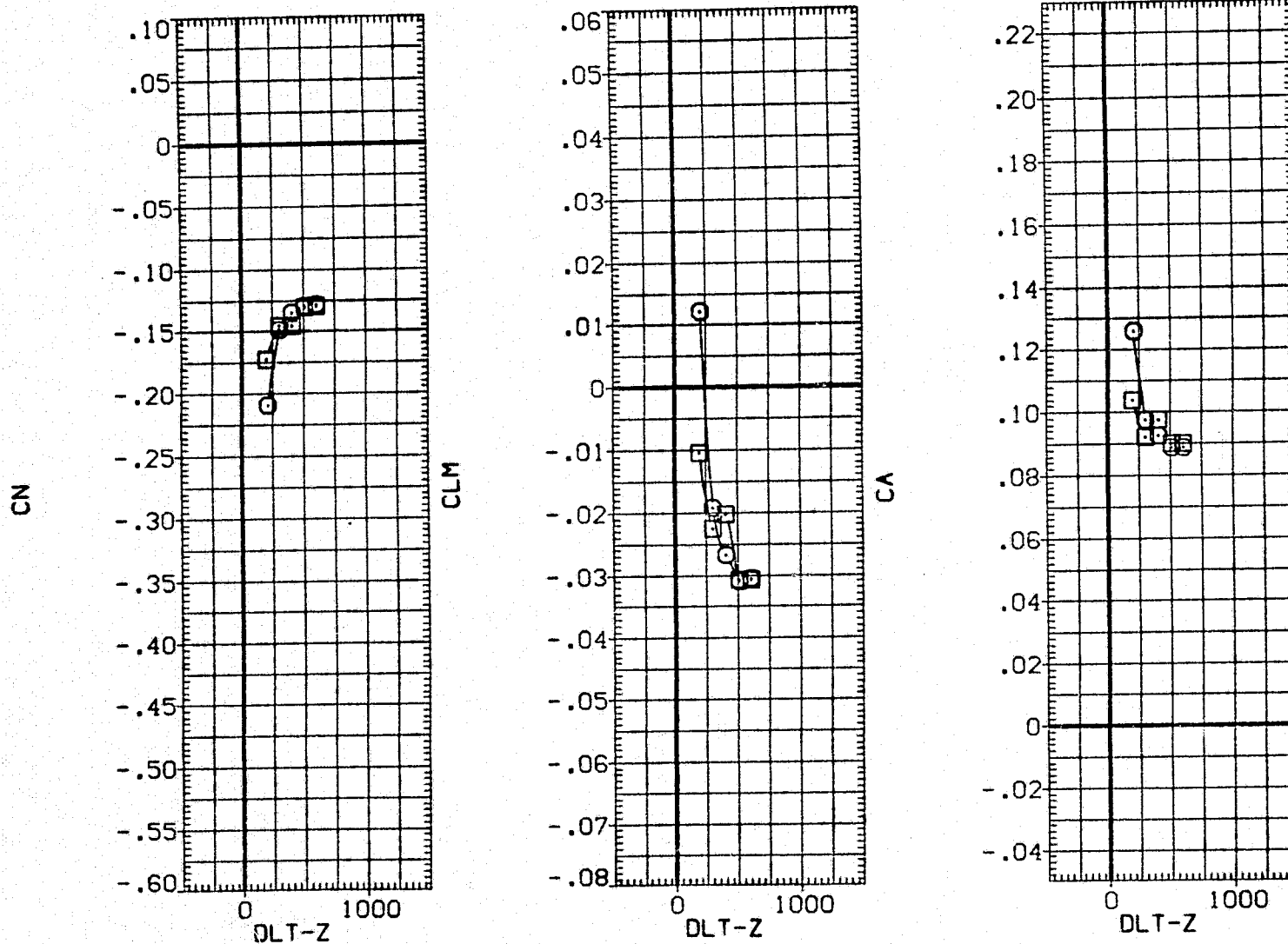


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR172)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
□	.566	BETA	.000	ALPHA
○	200.450	DLTBTBTA	.000	DLTALF
		AILRON	.000	MACH
		GRID	8.000	ELEVON
				PG
				300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

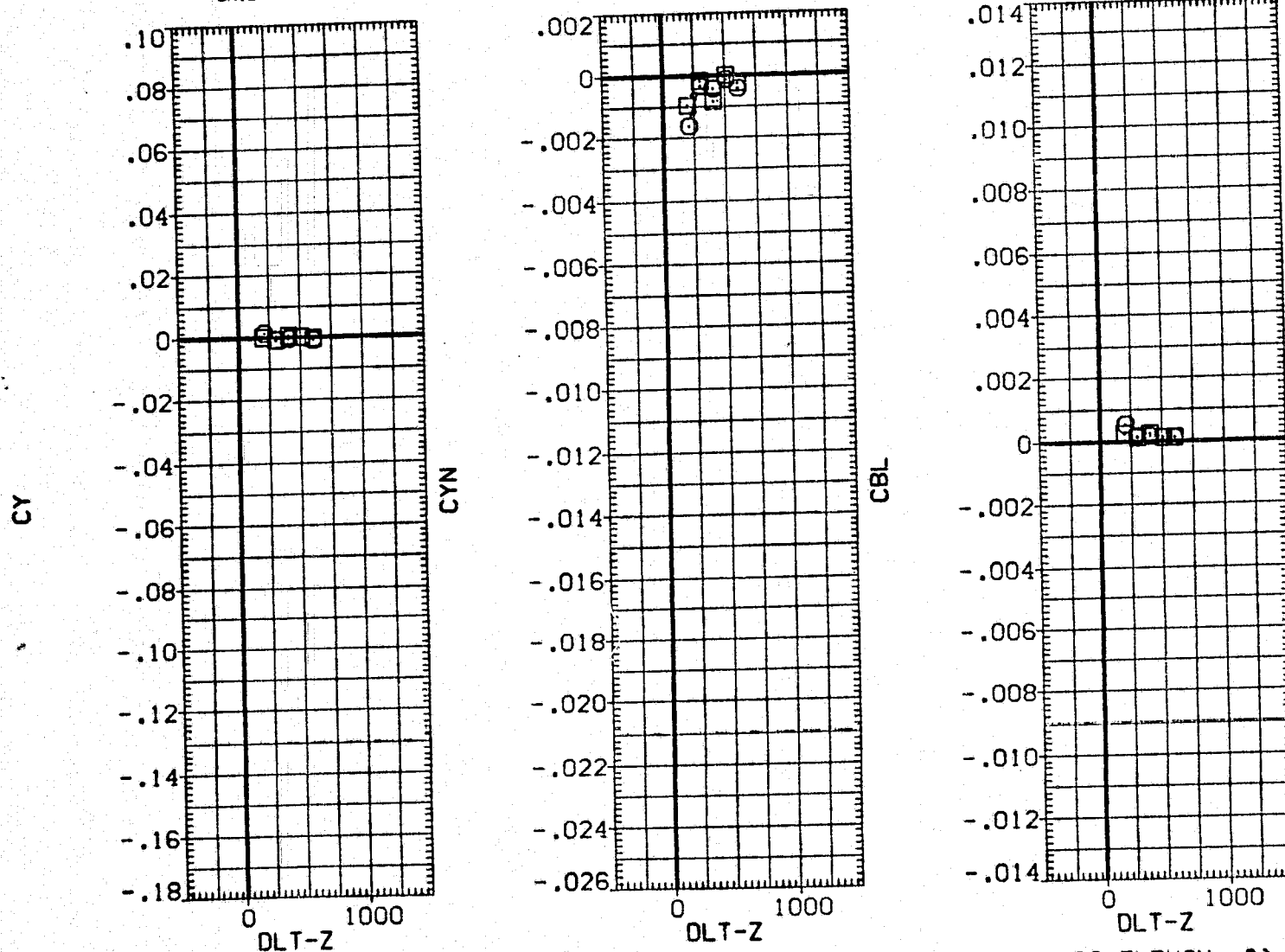


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR173)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLTALF	
○	.439	.000	.000	-5.000	-10.000	
□	200.410	.000	.000	-10.000	7.980	
◇	400.440	.000	.000	7.980	.000	
		AILRON	.000	ELEVON	.000	
		GRID	8.000	PO	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

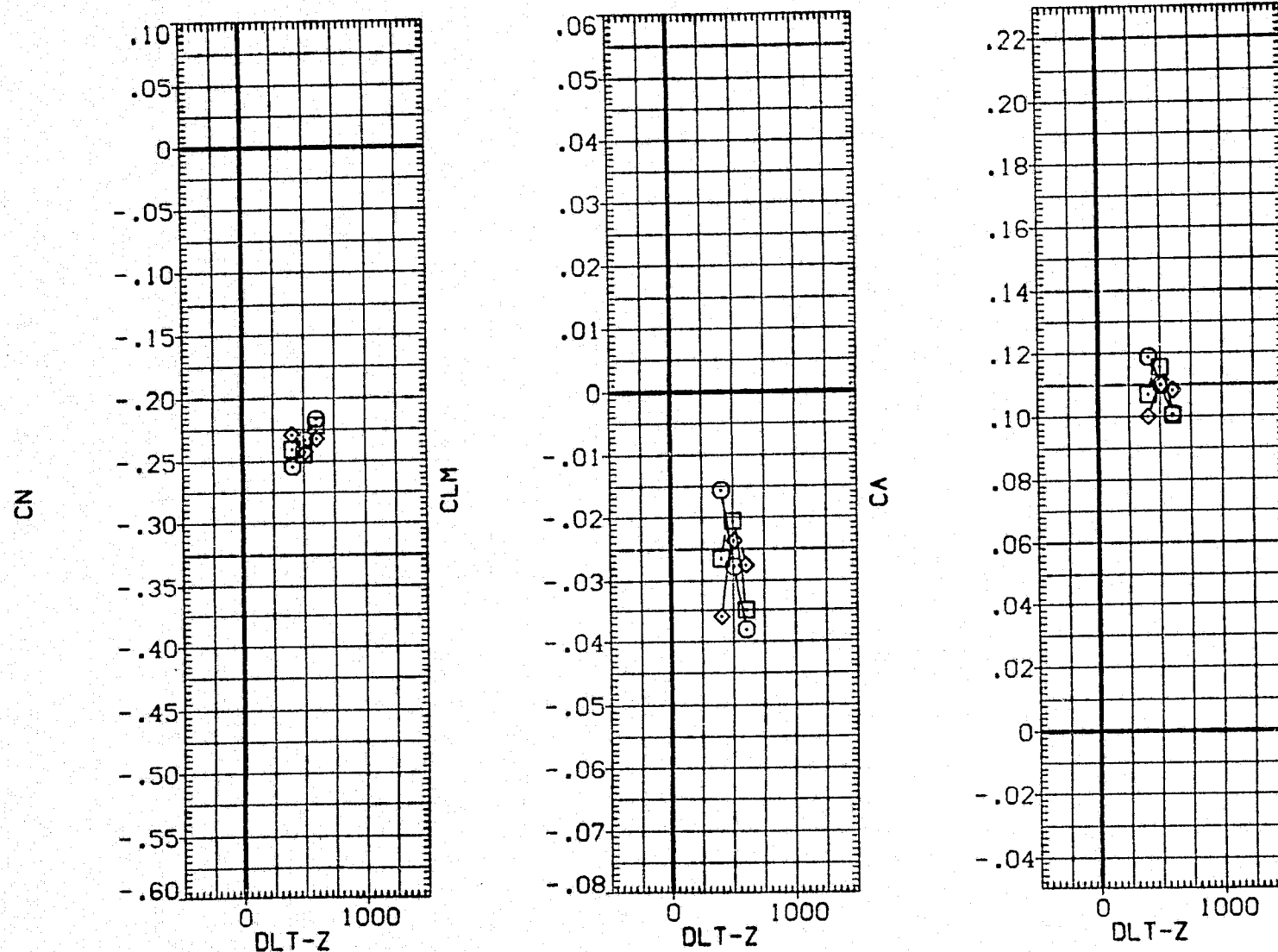


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR173)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.439	.439	.000	.000	ALPHA	-5.000
□	200.410	BETA	.000	.000	DLTALF	-10.000
◇	400.440	DLTBTA	.000	.000	MACH	7.980
		AILRON	.000	.000	ELEVON	.000
		GRID	8.000	PO	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

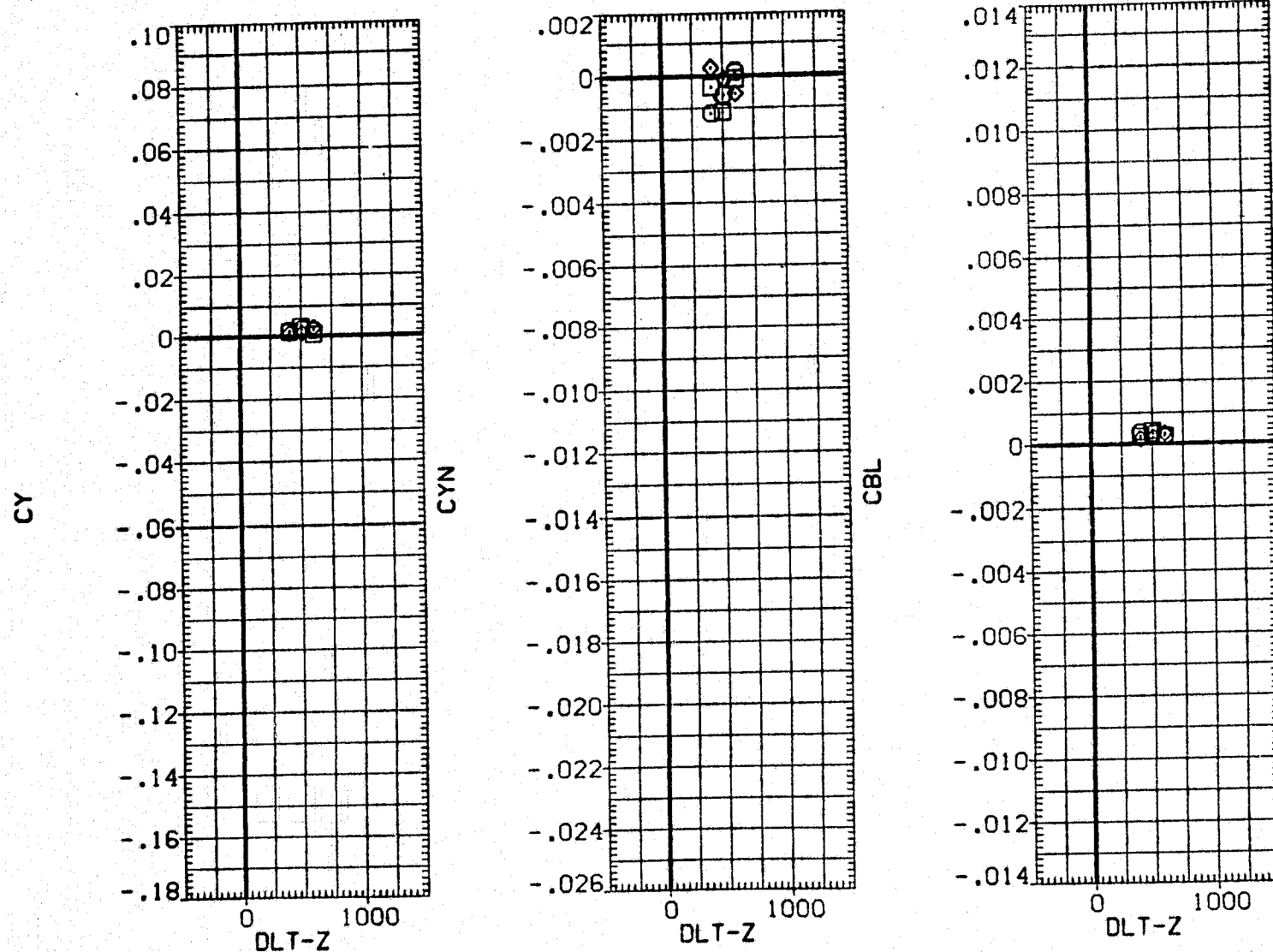


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR174)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.552	.000	ALPHA	-5.000
□	200.340	.000	DLTALF	-15.000
◇	400.430	.000	MACH	7.980
		.000	ELEVON	.000
		.000	P0	300.000
		8.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

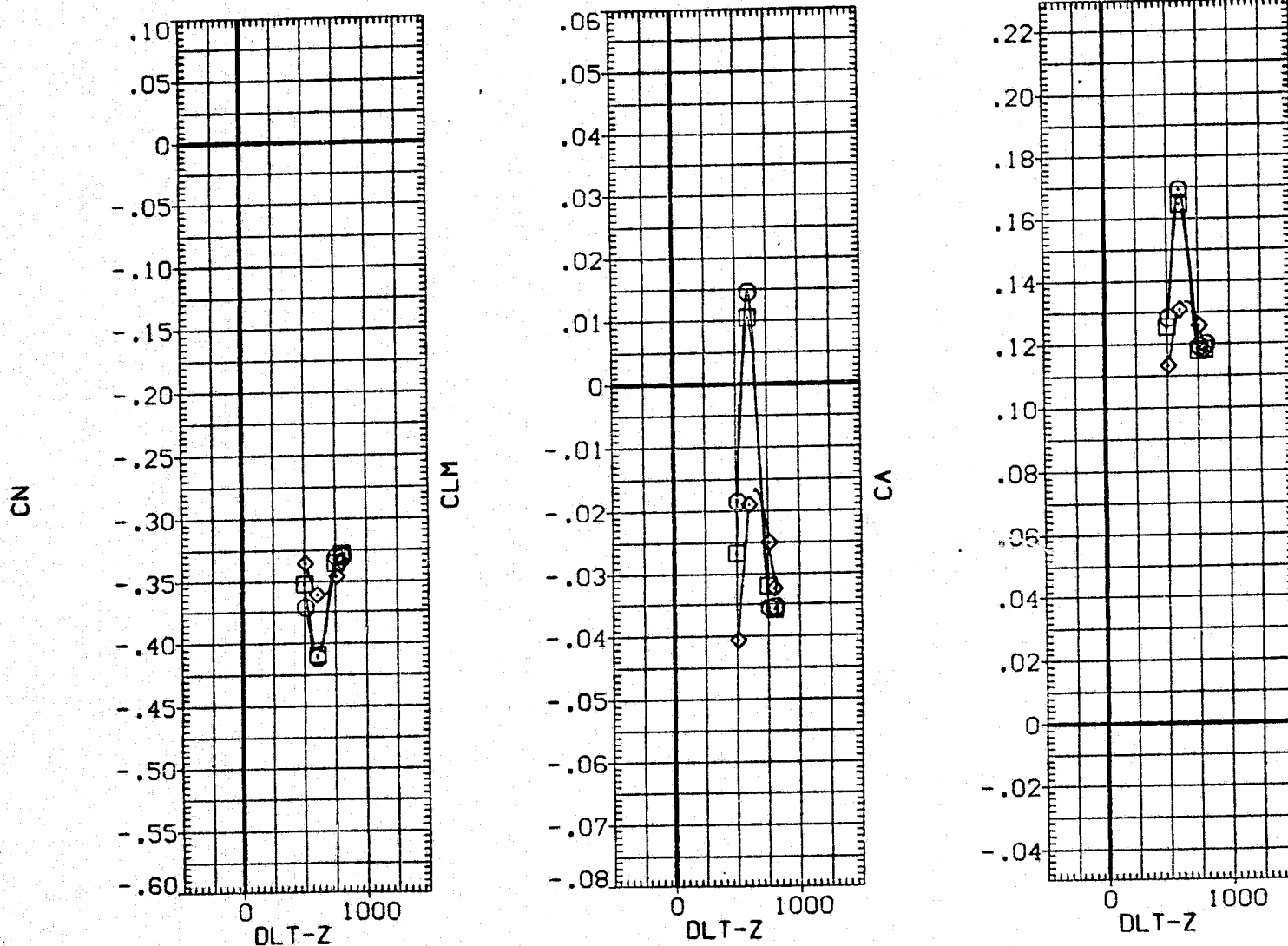


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR174)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.552	.000	DLTALF	-5.000	
□	200.340	.000	MACH	7.980	
◇	400.430	.000	ELEVON	.000	
		GRID	PO	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

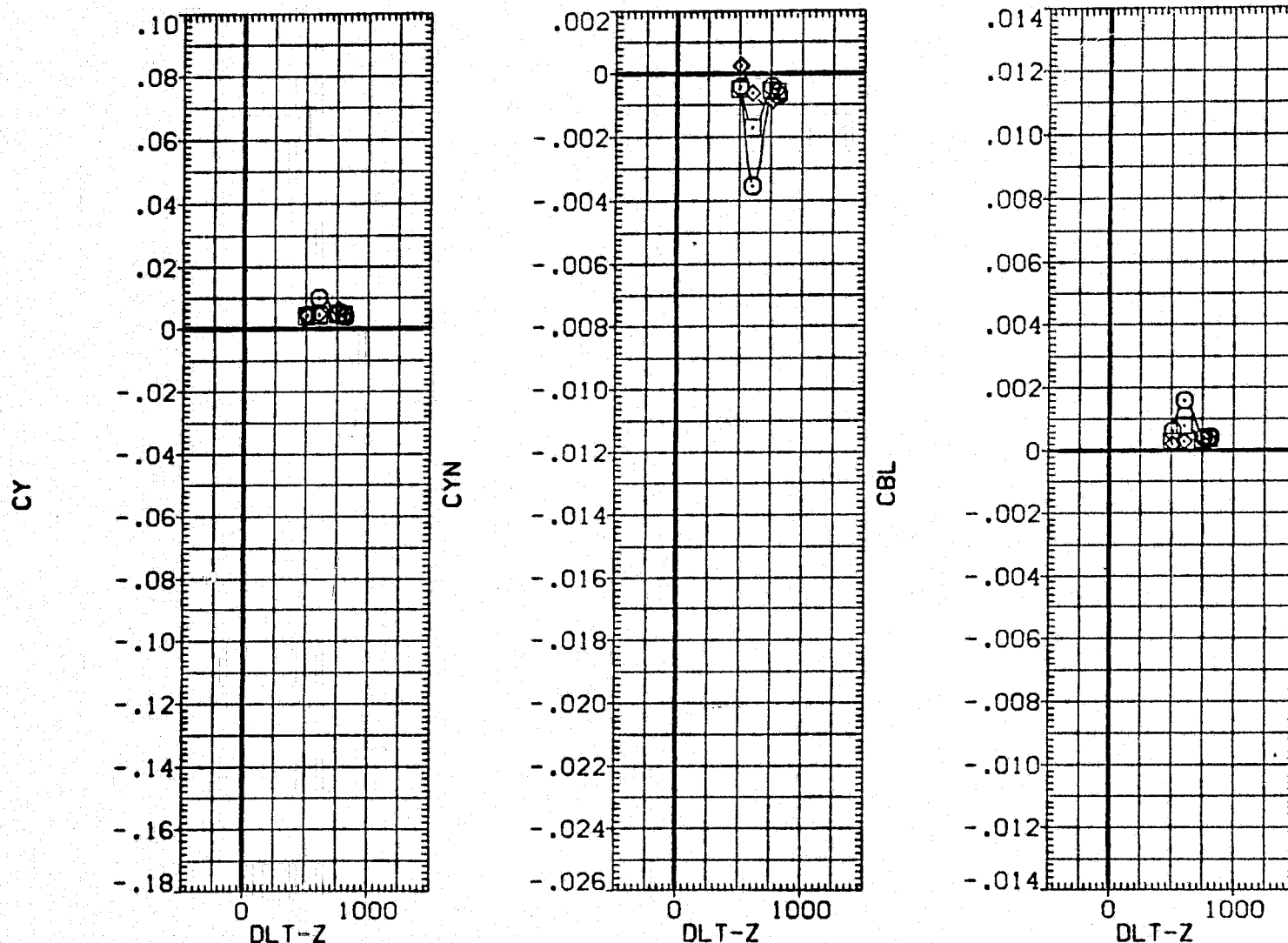


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR176)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.295	.000		-5.000
□	200.520	BETA .000	DLTALF	-20.000
◇	400.430	DLTBTA .000	MACH	7.980
		ATLRON .000	ELEVON	.000
		GRID 8.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

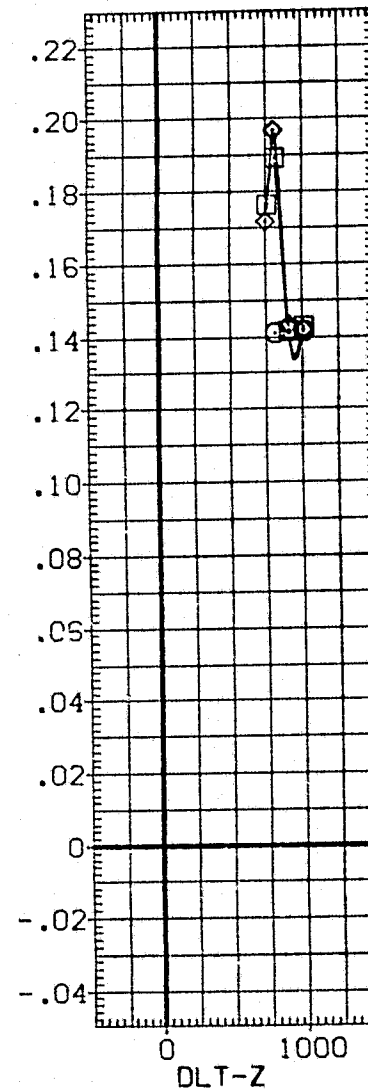
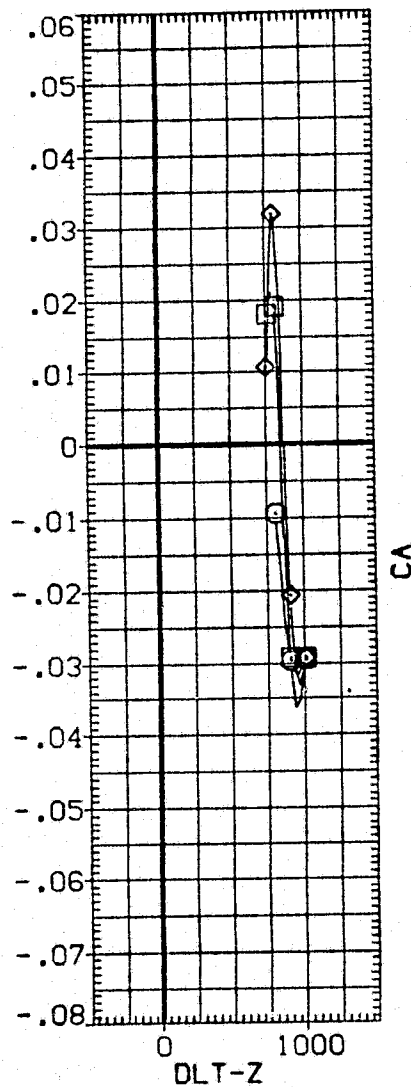
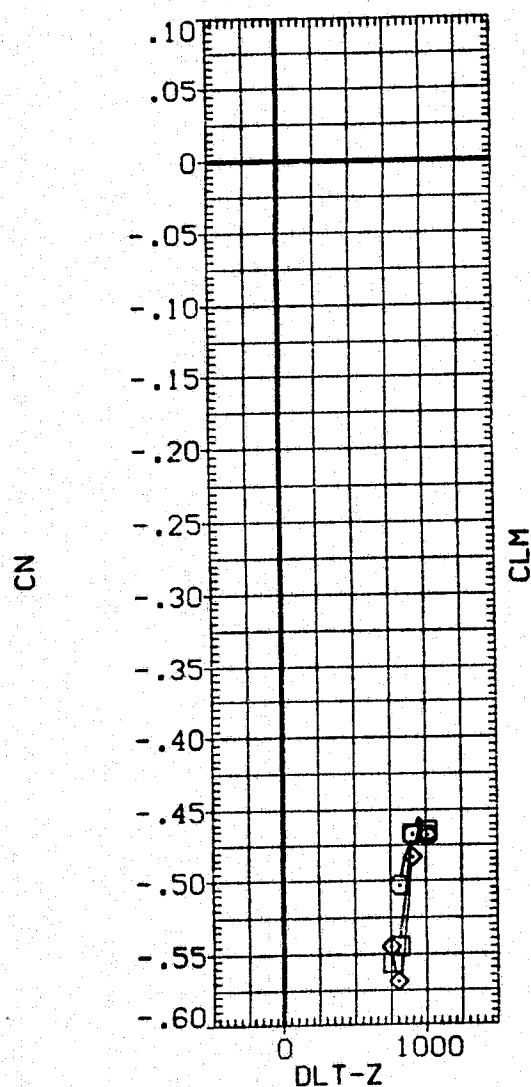


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR176)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	.295	DLT-Y	.000	ALPHA	-5.000	
□	200.520	BETA	.000	DLTALF	-20.000	
◇	400.430	DLTBTA	.000	MACH	7.980	
		AILRON	.000	ELEVON	.000	
		GRID	8.000	PO	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

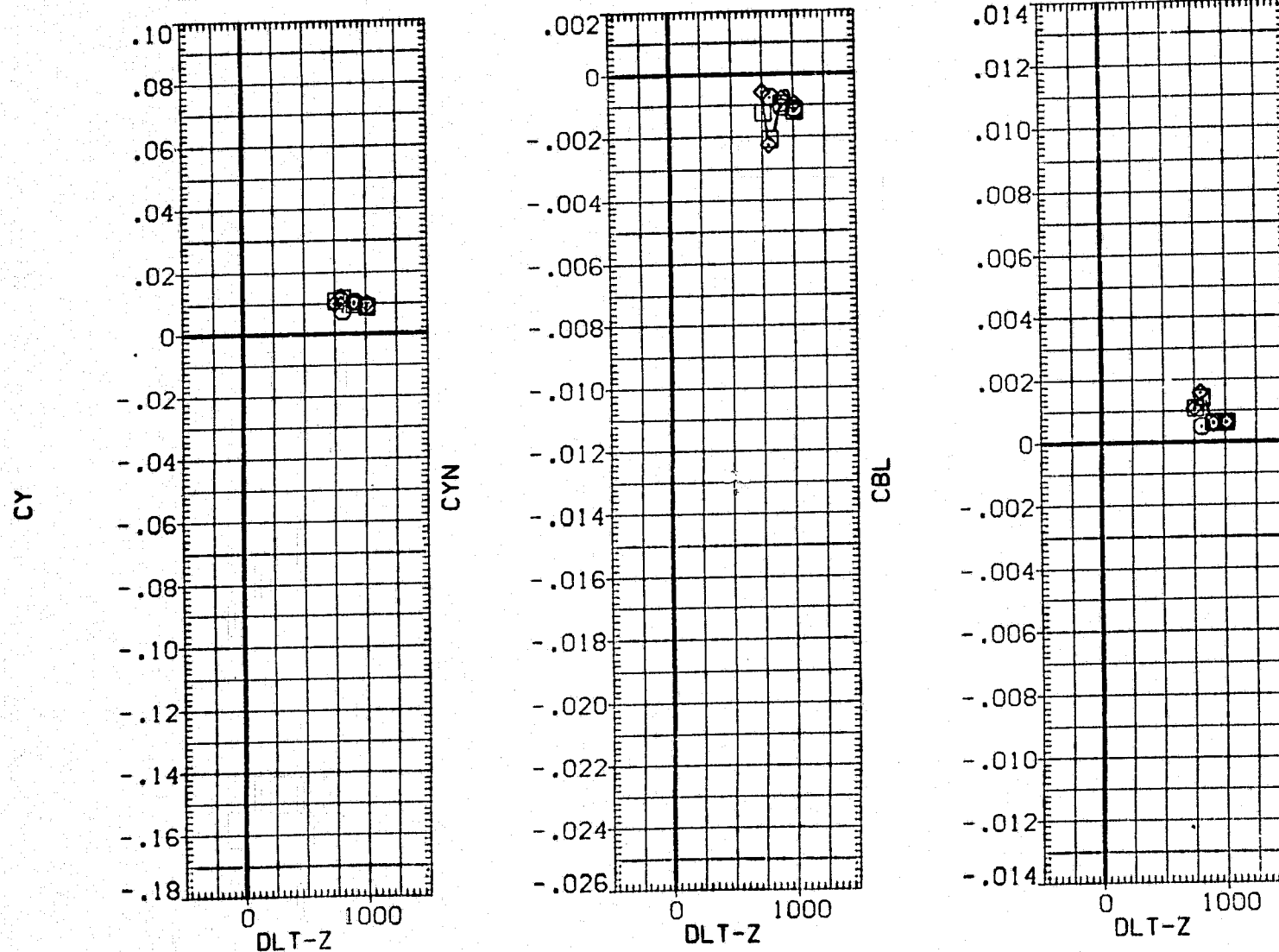


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR143)

SYMBOL		DLT-X	PARAMETRIC VALUES			
○		.588	DLT-Y	.000	ALPHA	-5.000
□		200.560	BETA	3.000	DLTALF	.000
			DLTBTA	.000	MACH	7.980
			AILRON	.000	ELEVON	.000
			GRID	18.000	PO	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

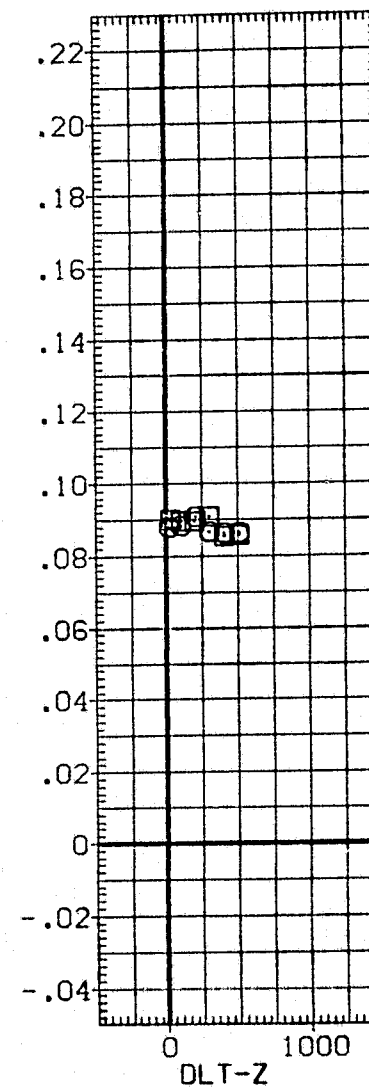
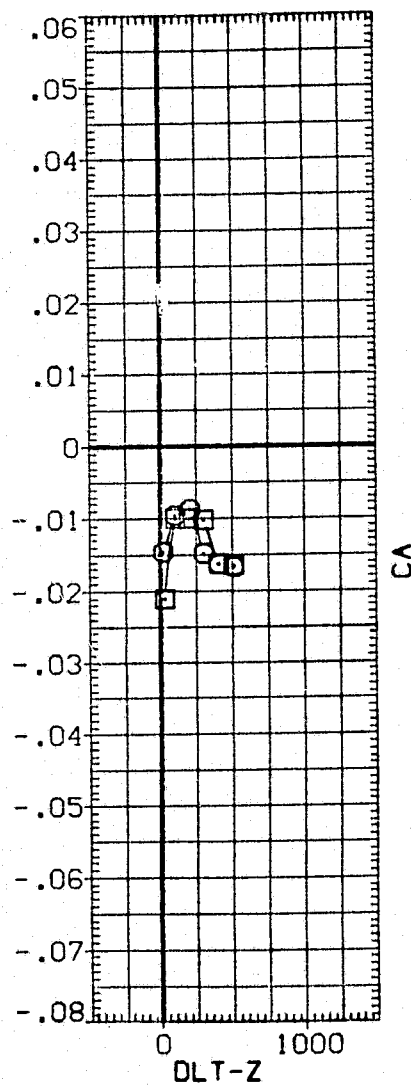
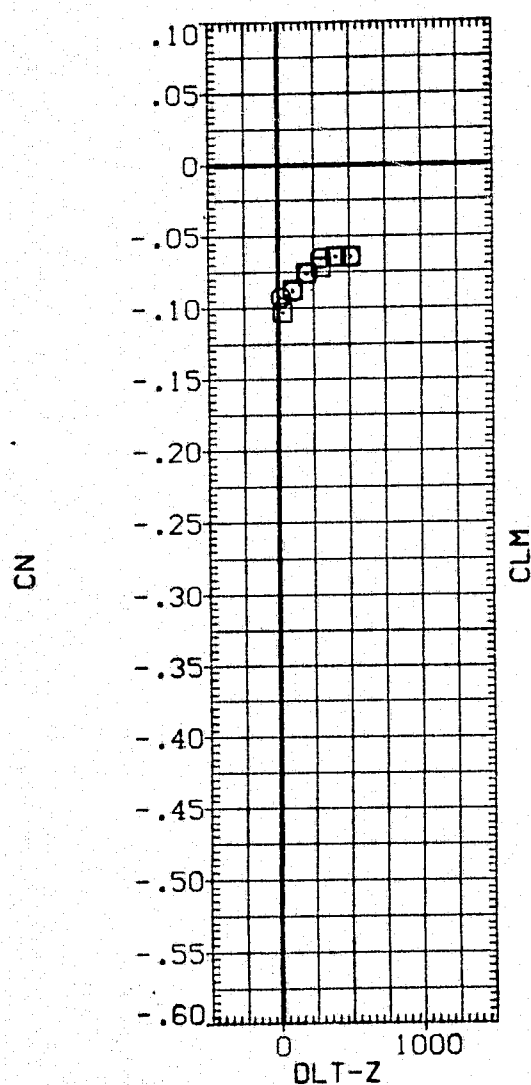


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS ($\Delta L-T-Y=0$, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR143)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y		ALPHA	
○	:588	BETA	.000	DLTALF	-5.000
□	200.560	DLTBT	3.000	MACH	.000
		ATLRON	.000	ELEVON	7.980
		GRID	.000	P0	.000
			18.000		420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

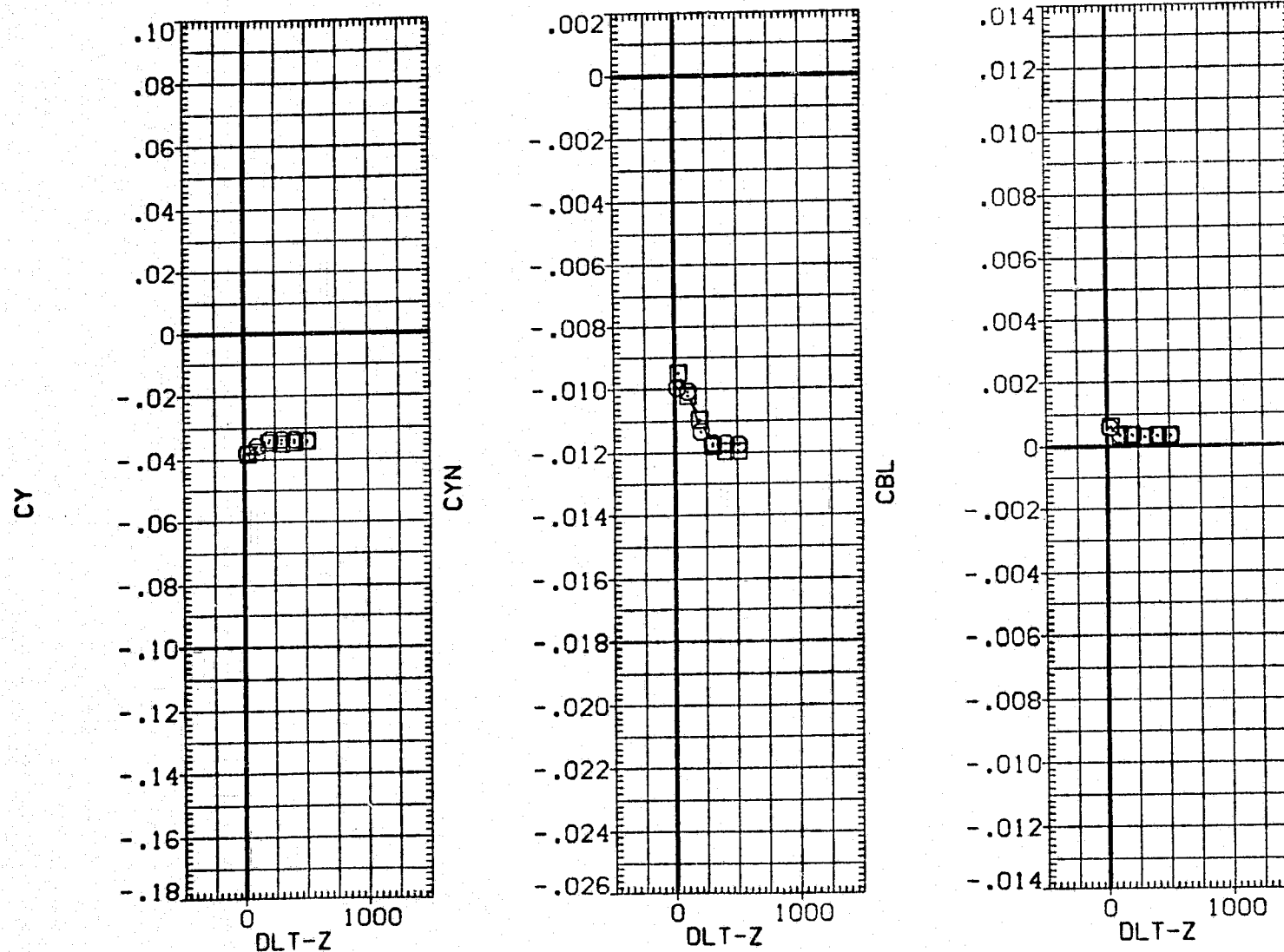


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR144)

SYMBOL	DLT-X	DLT-Y	BETA	DLTBT	AIRTON	GRID	PARAMETRIC VALUES	ALPHA	DLTALF	MACH	ELEVON	P0
○	.606							-5.000				
□	200.540							-5.000		7.980	.000	420.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

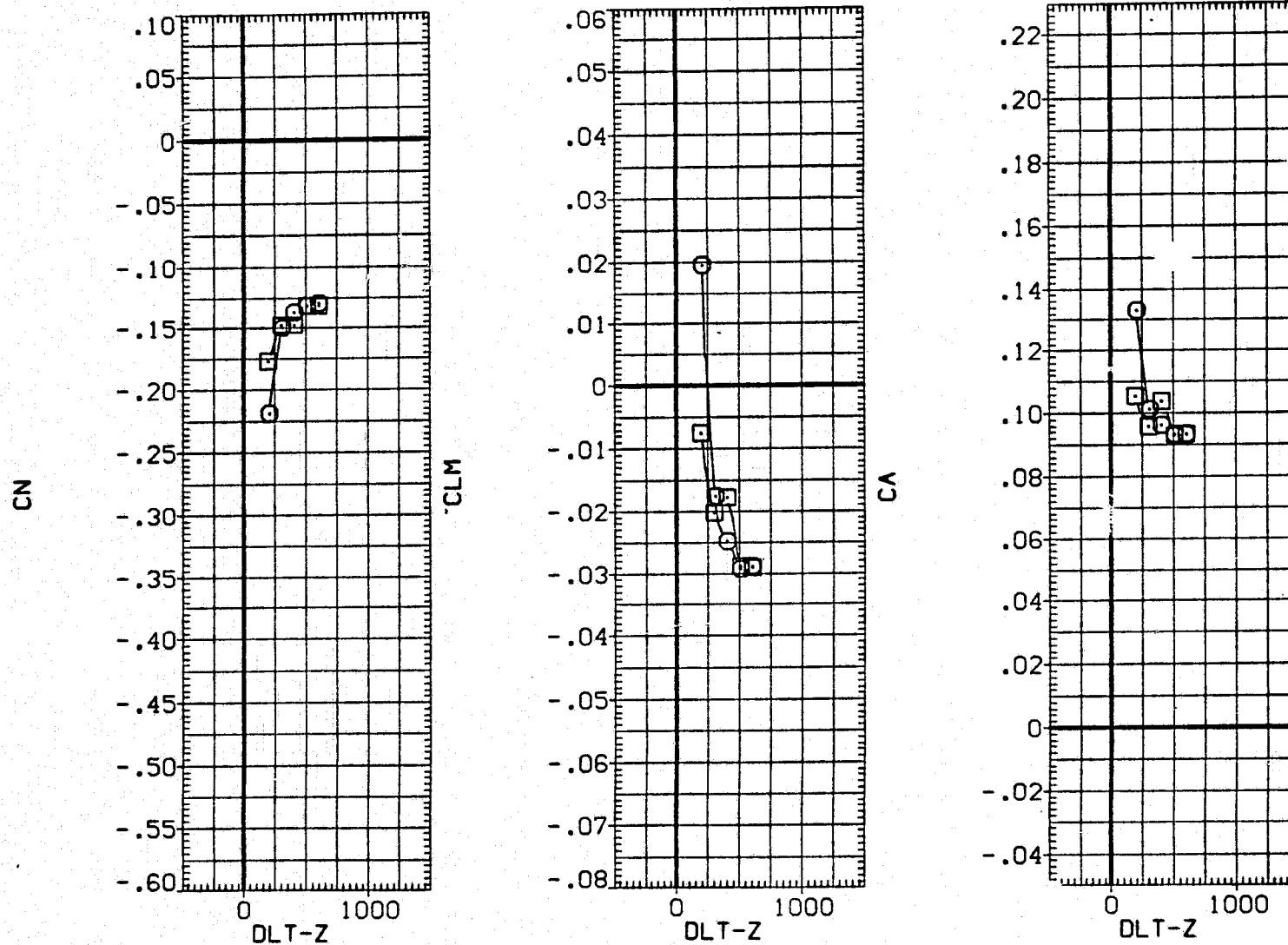


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH 7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR144)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.606		ALPHA	-5.000
□	200.540	BETA	DLTALF	-5.000
		DLTBTA	MACH	7.980
		AILRON	ELEVON	.000
		GRID	PO	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

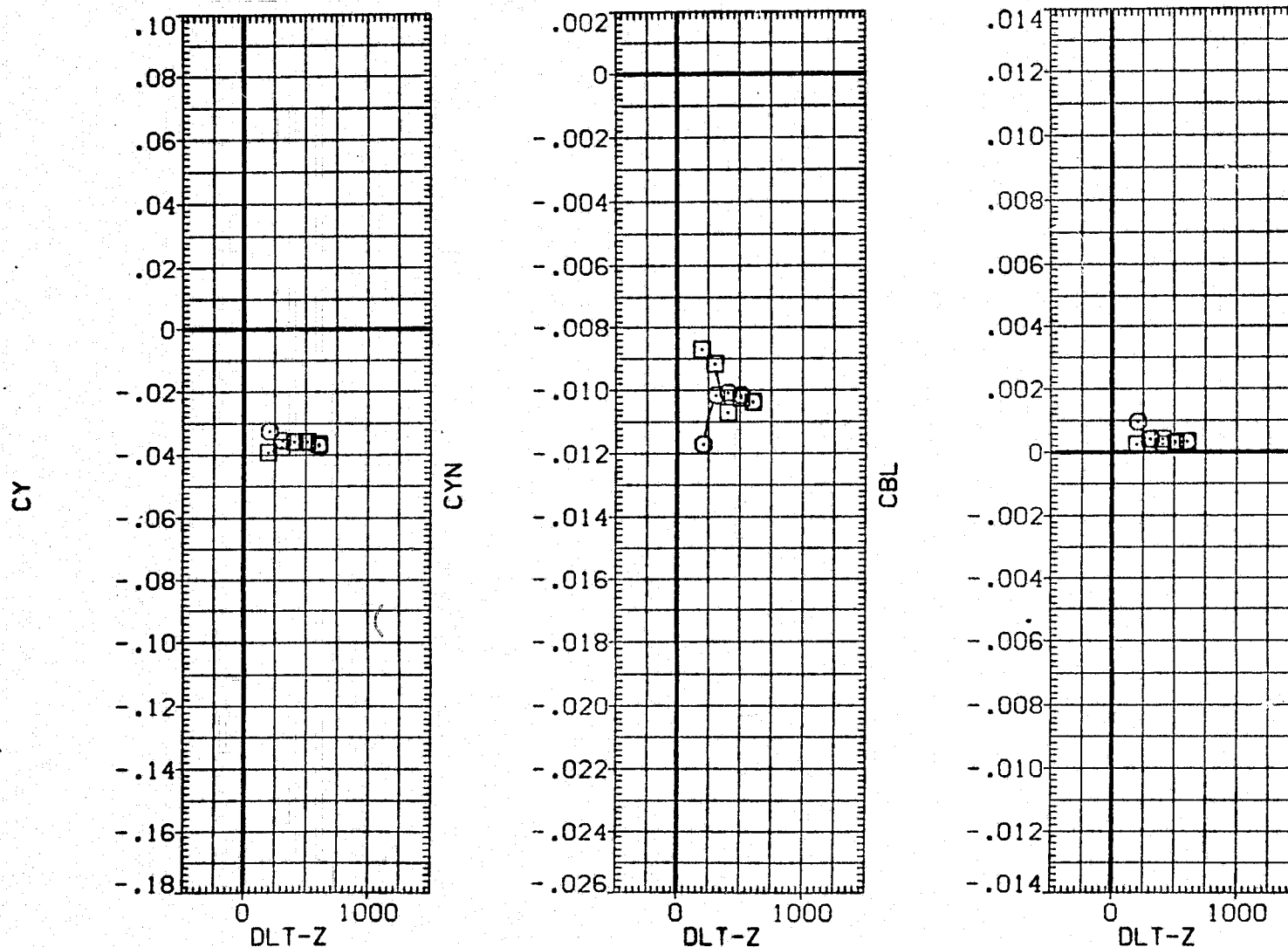


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR145)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.490	.000	ALPHA	-5.000
□	200.560	3.000	DLTALF	-10.000
◇	400.520	.000	MACH	7.980
		.000	ELEVON	.000
		18.000	PC	420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

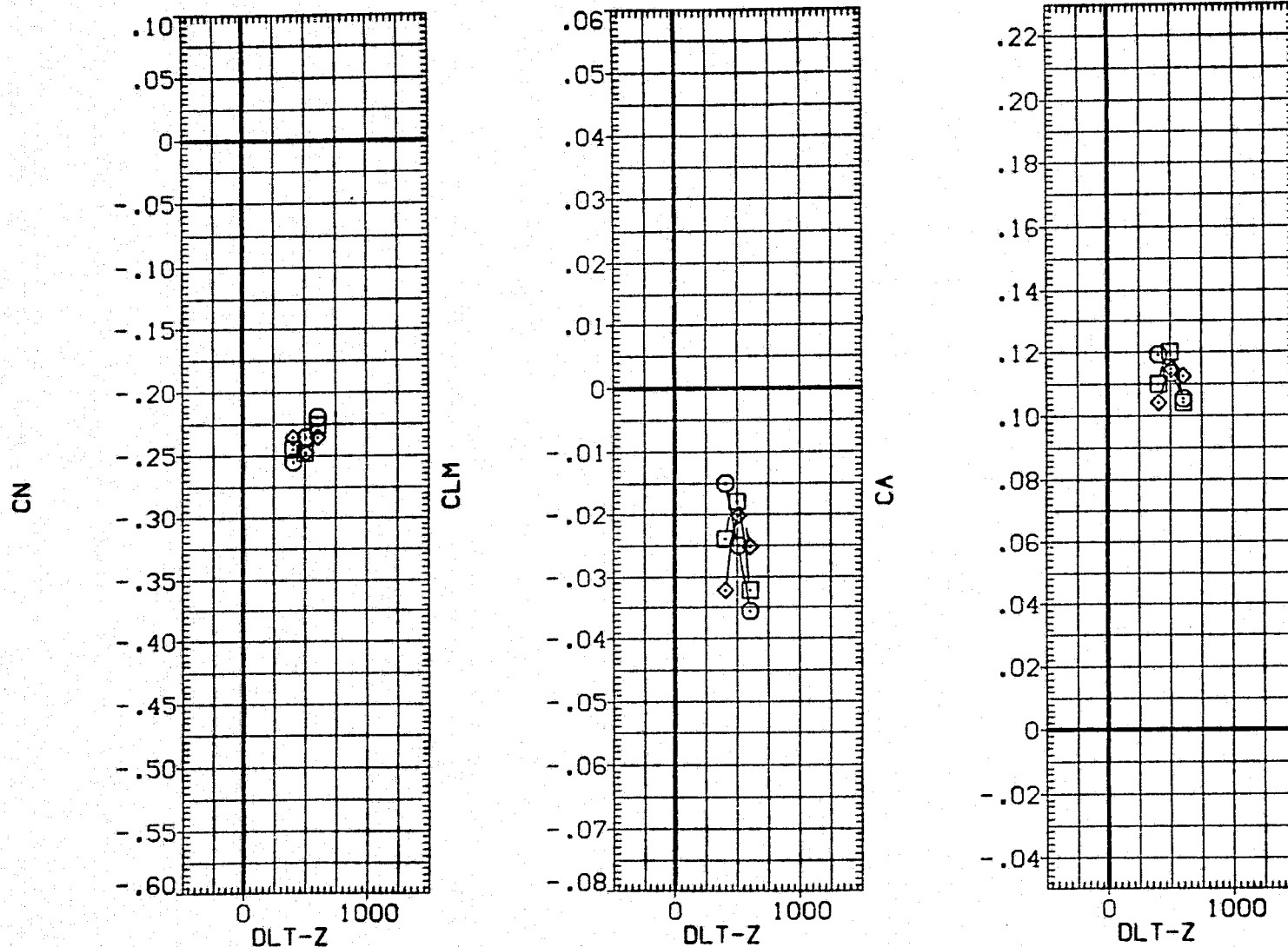


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR145)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	-5.000
◇	.490	BETA	.000	DLTALF	-10.000
□	200.560	DLTBTA	3.000	MACH	7.980
◇	400.520	AIRLON	.000	ELEVON	.000
		GRID	18.000	P0	420.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. YT
SCALE	.0100

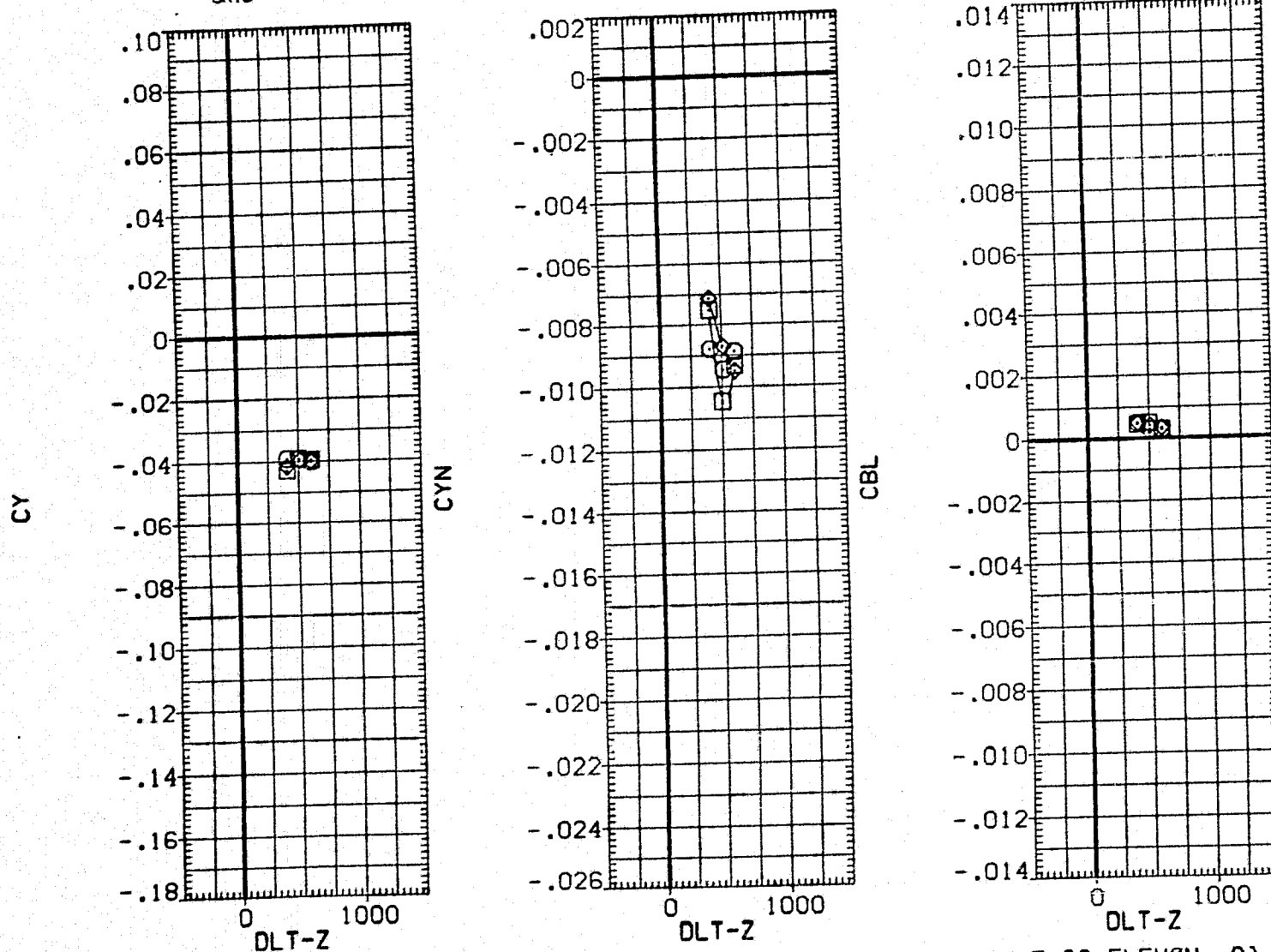


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR146)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	ALPHA	
○	.366	.000	-5.000	
□	200.420	BETA	3.000	DLTALF
◇	400.510	DLTBT	.000	MACH
		AILRON	.000	ELEVON
		GRID	18.000	PO
				420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

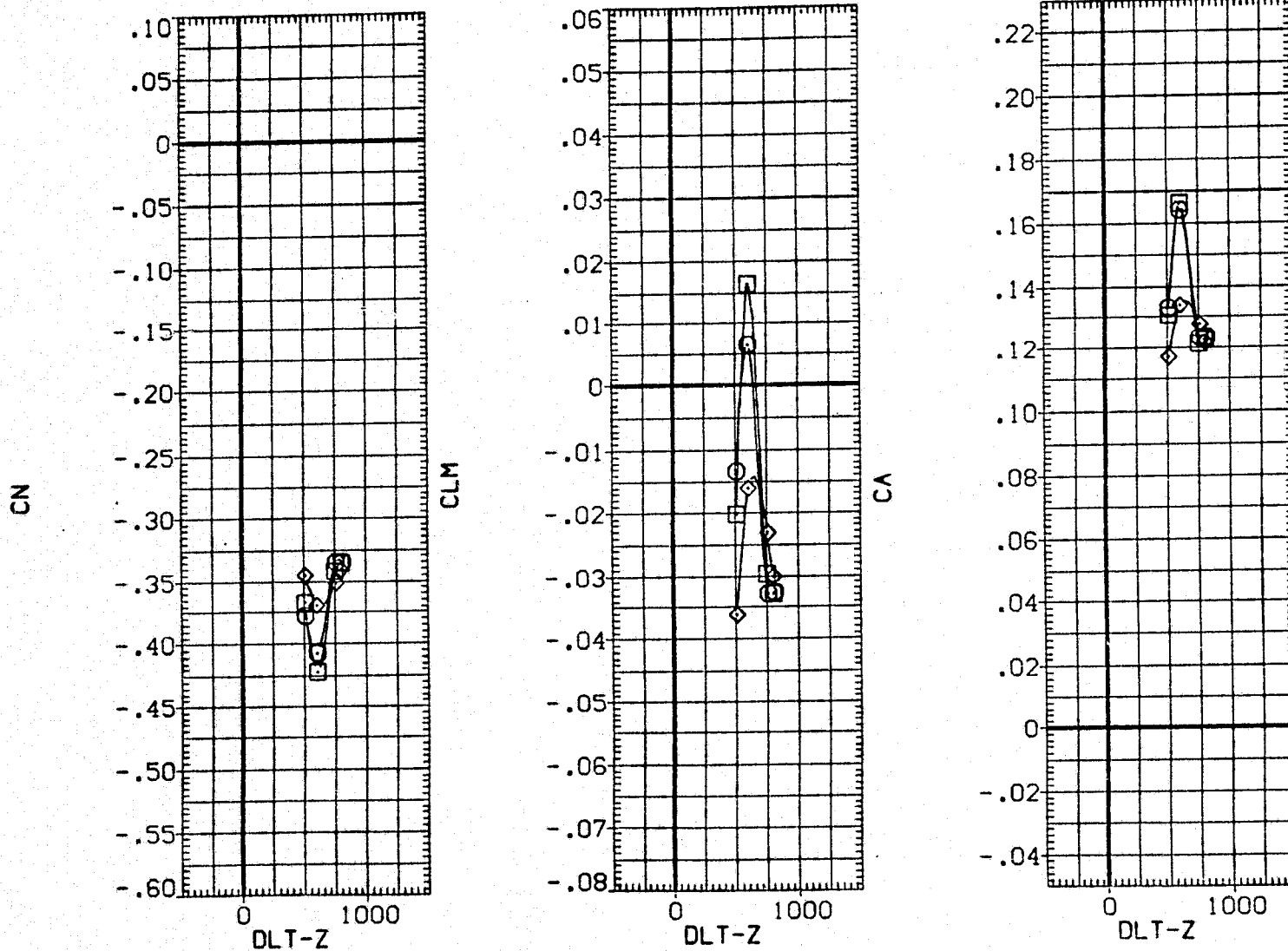


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR146)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.366	BETA	.000	-15.000	7.980	.000
□	200.420	DLTBTA	.000	.000	.000	420.000
◇	400.510	AILRON	.000	.000	.000	.000
		GRID	18.000	PG		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

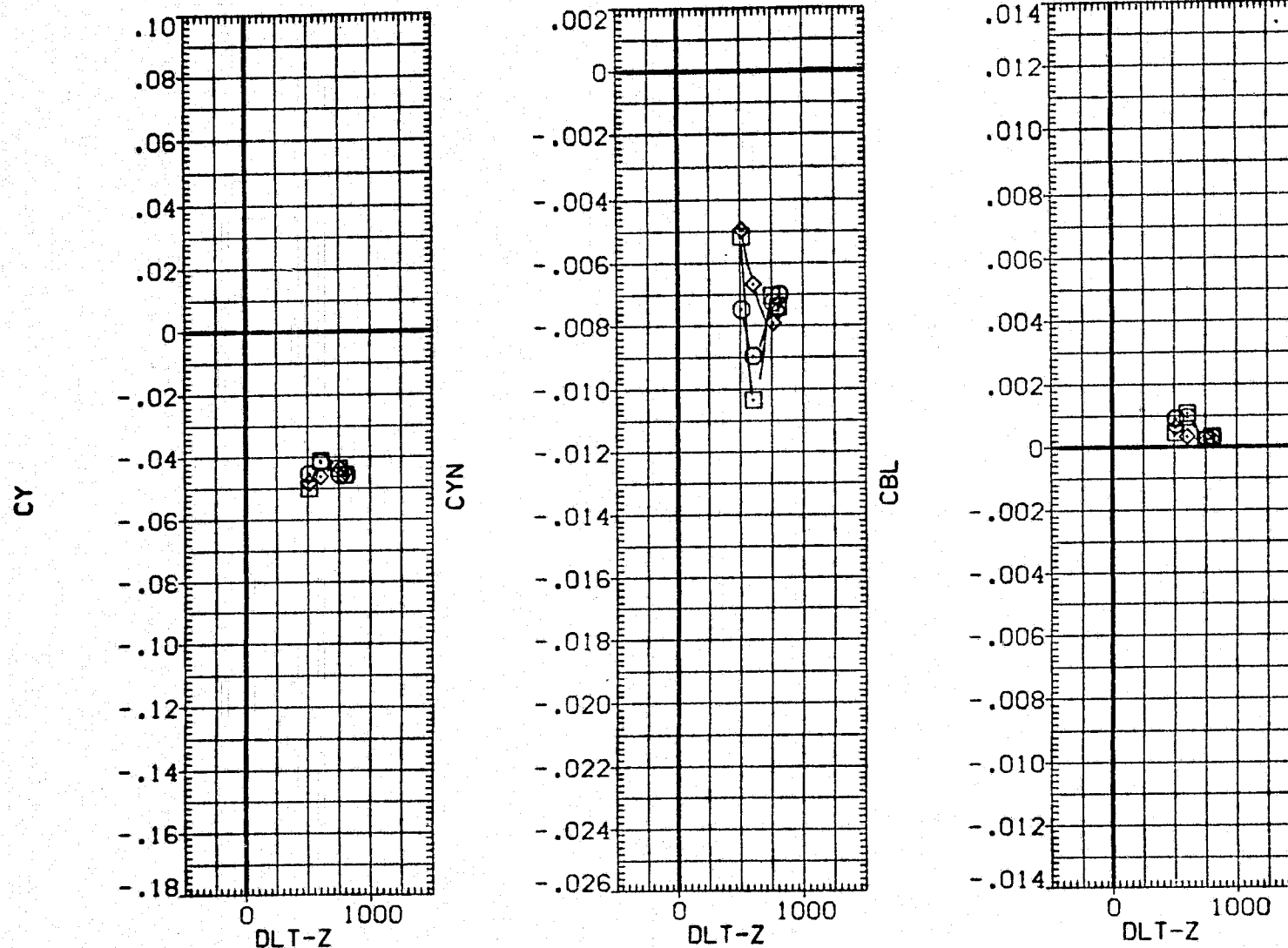


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR148)

SYMBOL		PARAMETRIC VALUES			
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	DLT-X			ALPHA	-5.000
	.432	DLT-Y	.000	DLTALF	-20.000
	200.430	BETA	3.000	MACH	7.980
	400.440	DLTBT	.000	ELEVON	.000
	AIRLON	.000	PG	370.000	
	GRID	18.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XM RP	1360.1000	IN. XT
YM RP	.0000	IN. YT
ZM RP	416.4000	IN. ZT
SCALE	.0100	

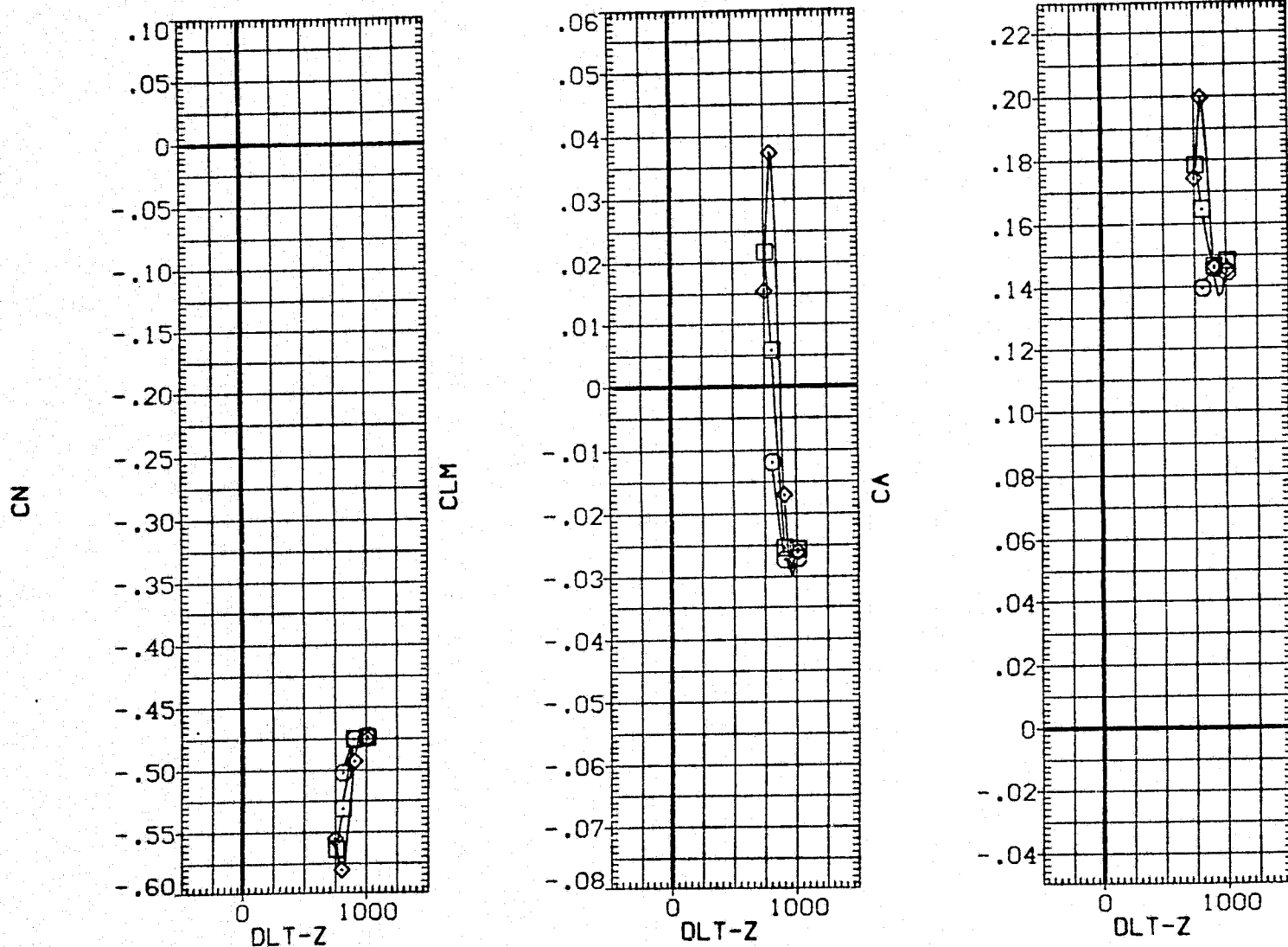


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS ($\Delta Y=0$, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR148)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y		ALPHA	
○	.432	BETA	.000	DLTALF	-5.000
□	200.430	DLTBTA	3.000	MACH	-20.000
◇	400.440	AILRON	.000	ELEVON	7.980
		GRID	.000	PQ	.000
			18.000		370.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

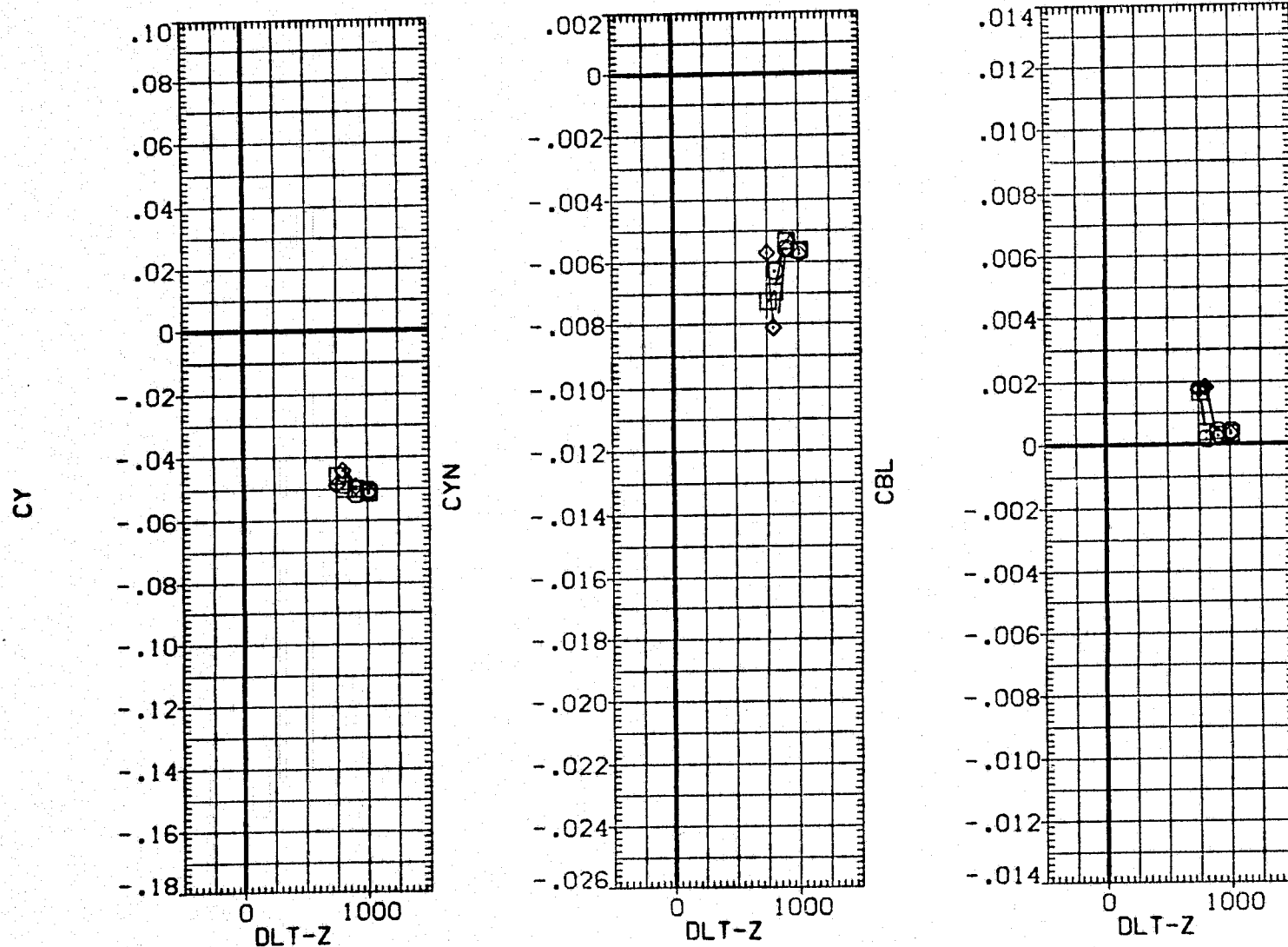


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR167)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	BETA	DLTBT	AILRON
○	.539	.000	3.000	.000	.000
□	200.450	.000	8.000	.000	.000

ALPHA	-10.000
DLTALF	.000
MACH	7.980
ELEVON	.000
P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

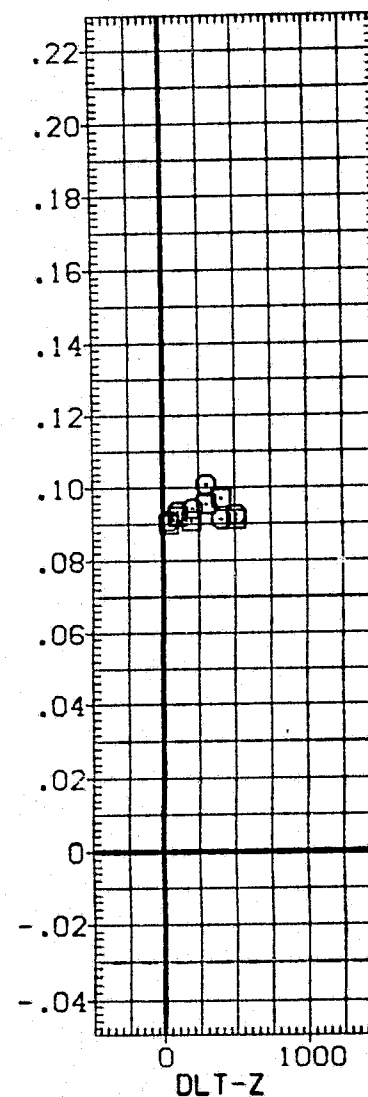
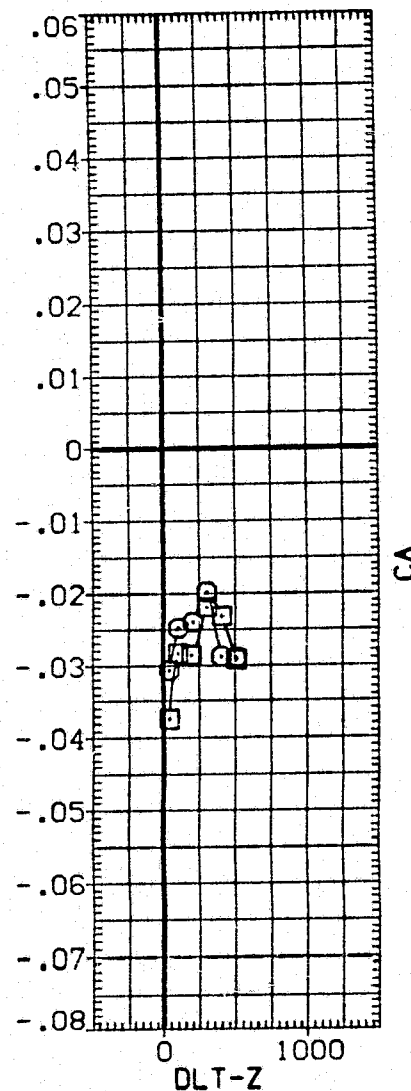
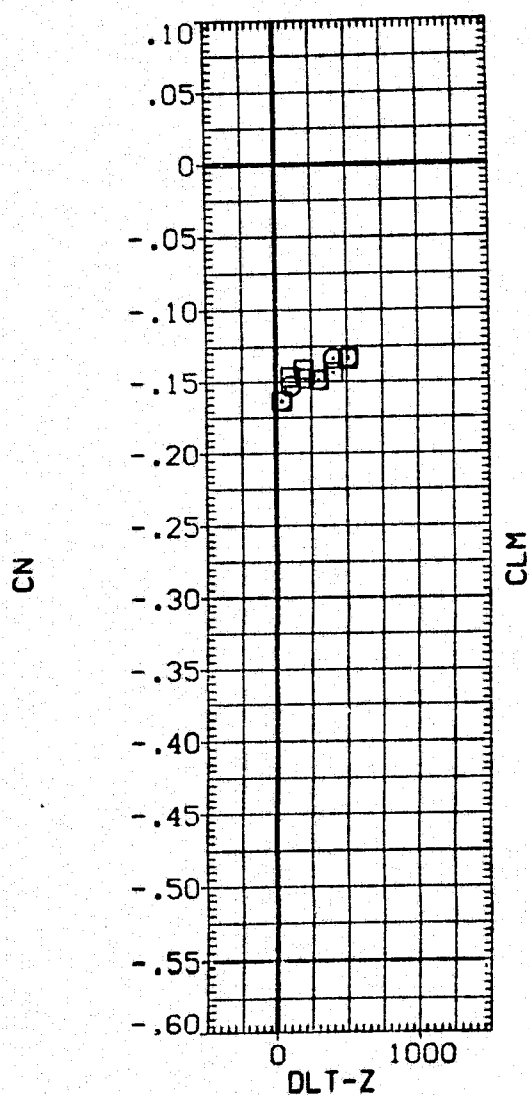


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR167)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.539		.000	.000	7.980	.000
□	200.460		3.000	.000	.000	300.000
			DLTBT			
			AILRON			
			GRID			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

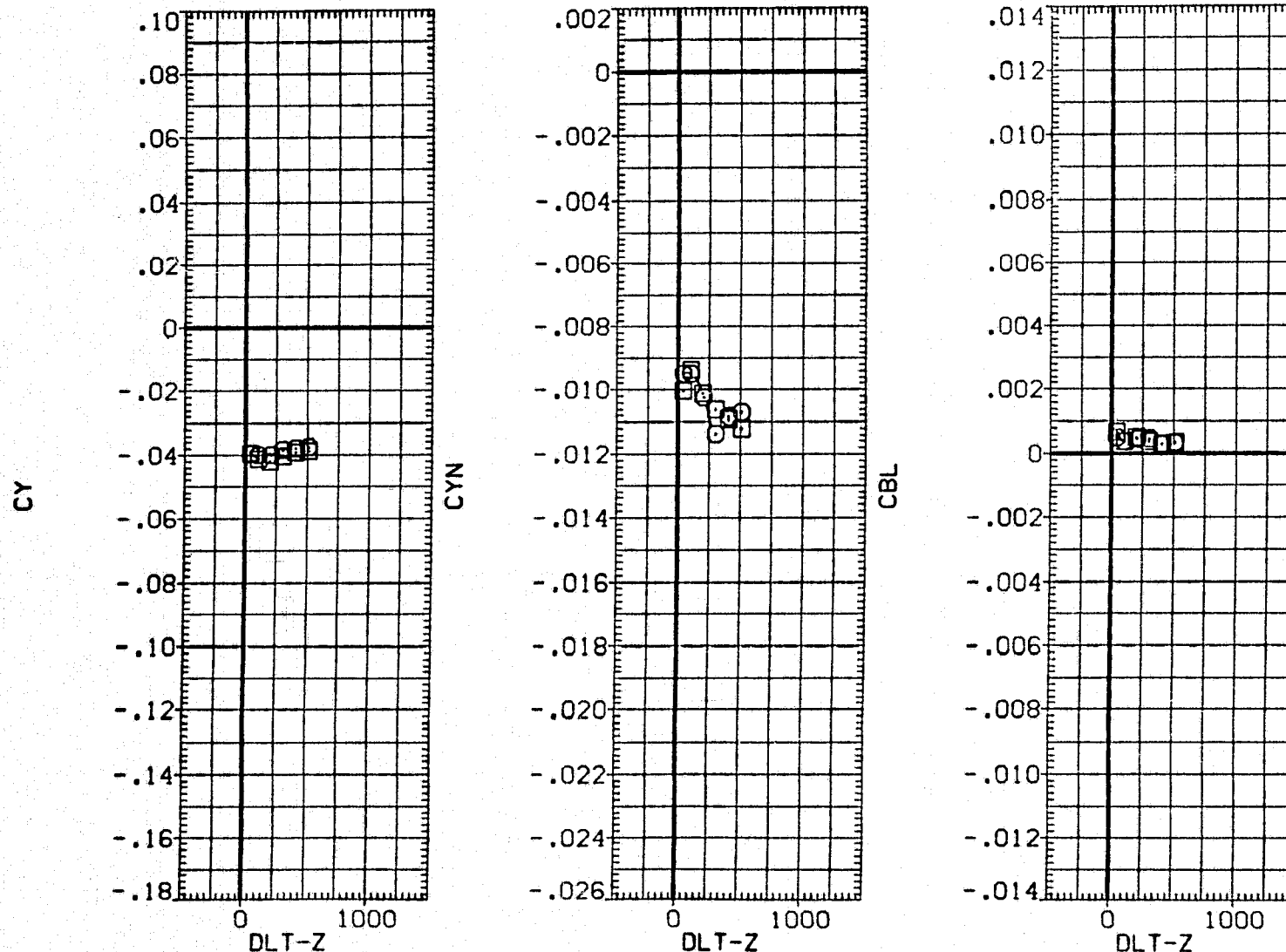


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR168)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.420	BETA	3.000	-10.000	-5.000	7.980
□	200.410	DLTBT	.000	.000	.000	300.000
		ATLRON	.000			
		GRID	8.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

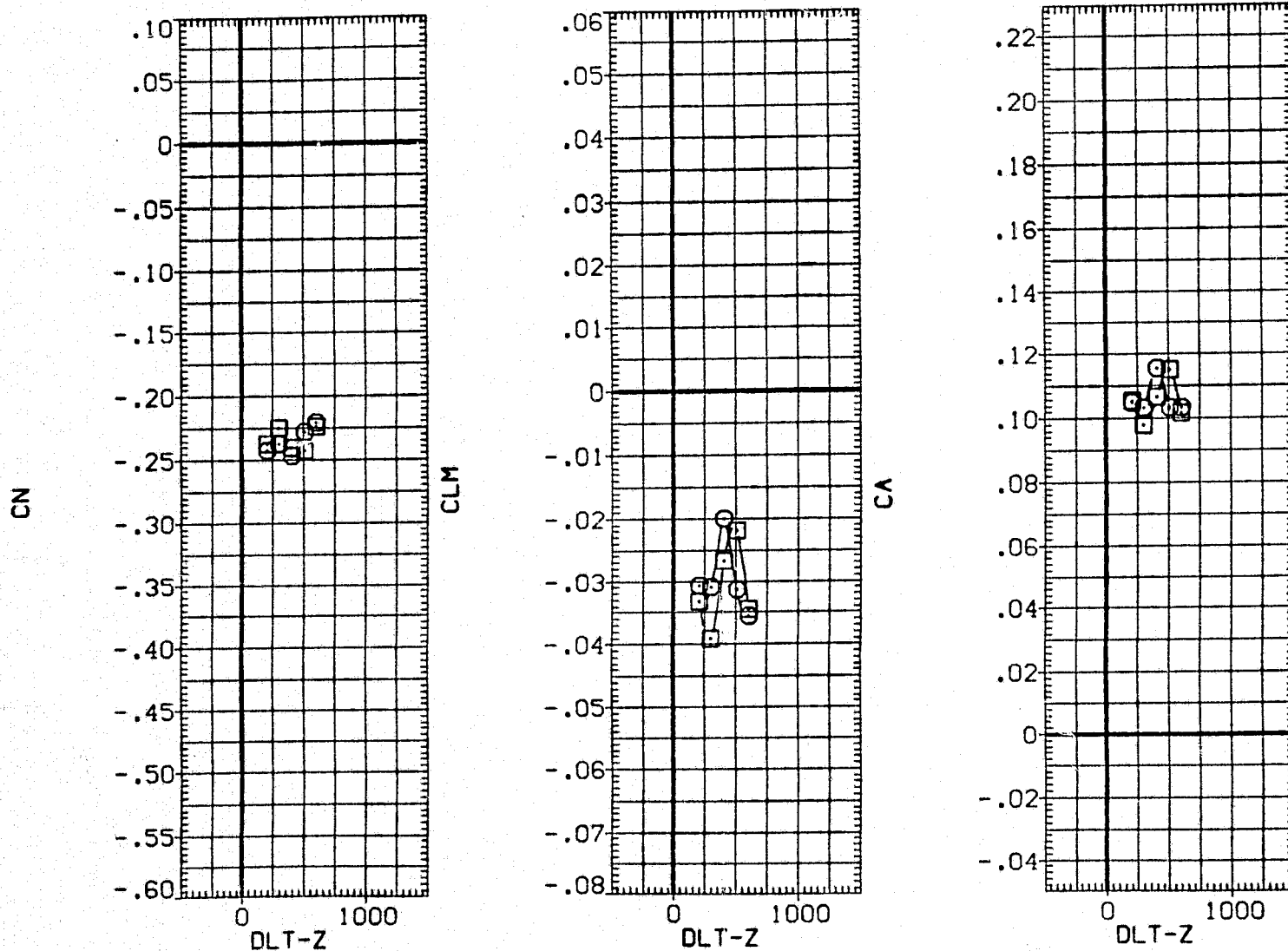


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR168)

SYMBOL		PARAMETRIC VALUES			
○	DLT-X	DLT-Y	ALPHA	-10.000	
□	200.410	BETA	DLTALF	-5.000	
		DLTBTA	MACH	7.980	
		AILRON	ELEVON	.000	
		GRID	PG	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

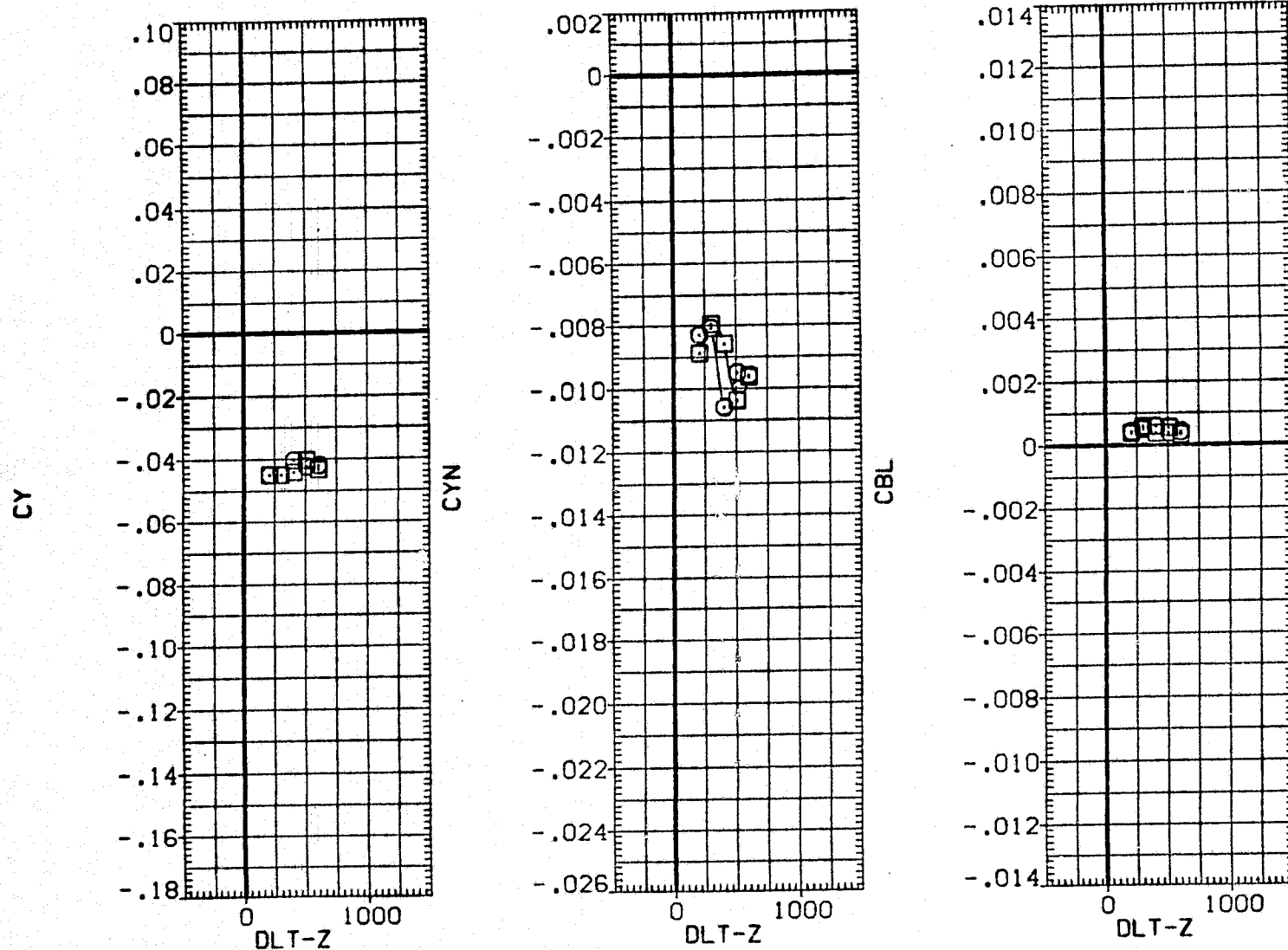


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR169)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	-10.000
○	.456	.000	DLTALF	-10.000	
□	200.330	BETA	3.000	MACH	7.980
◇	400.540	DLTBTA	.000	ELEVON	.000
		AILRON	.000	PG	300.000
		GRID	8.000		

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

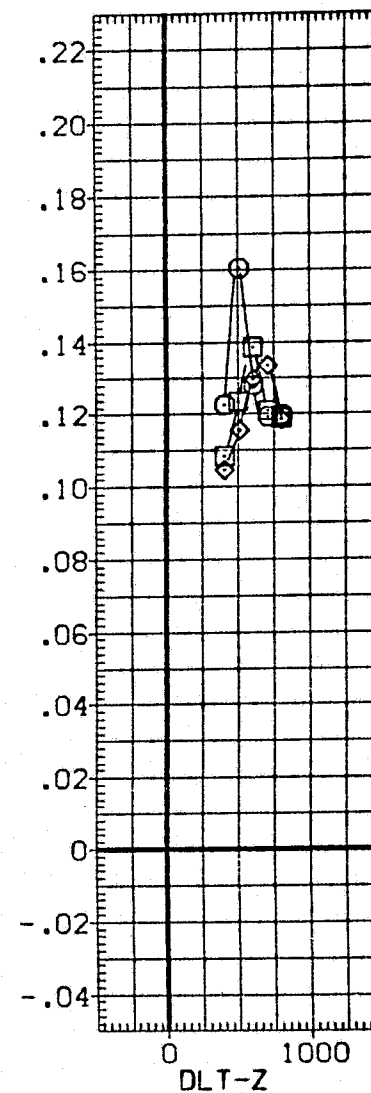
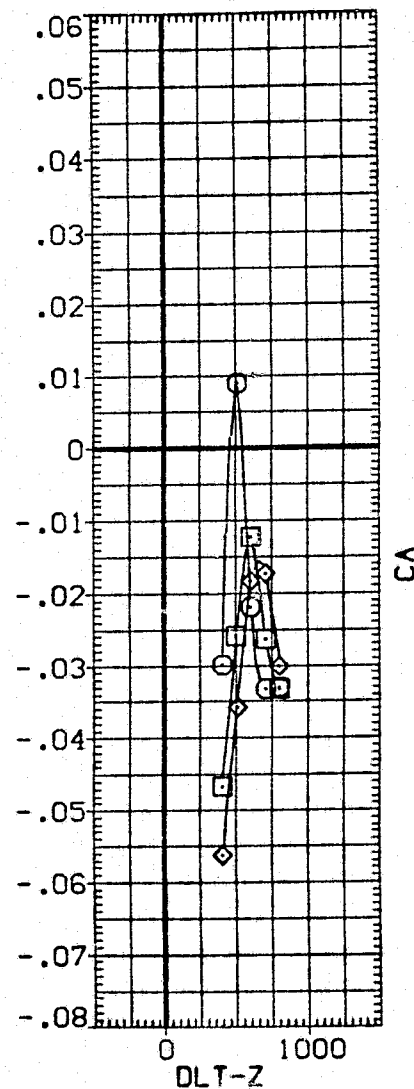
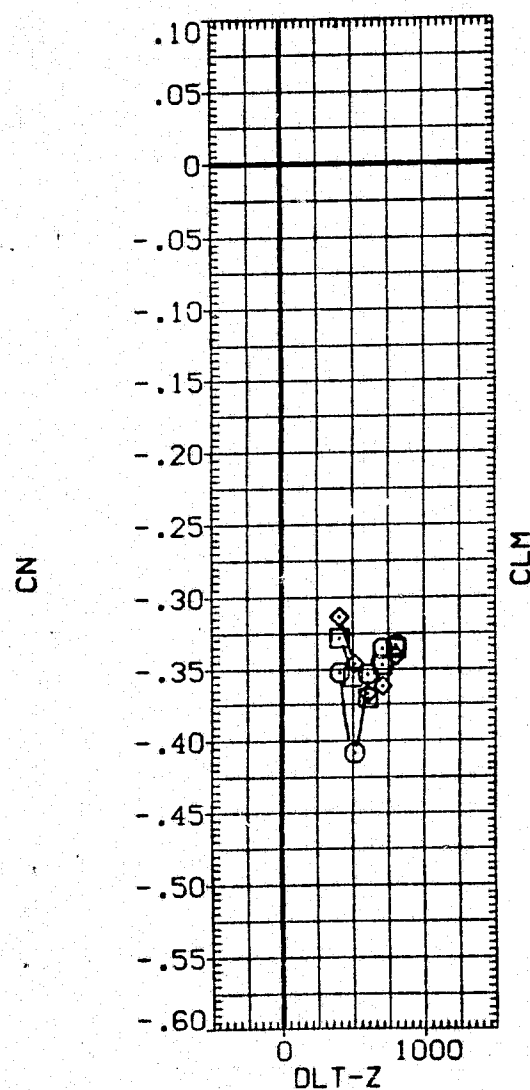


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR169)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.456	.000	BETA	-10.000
□	200.330	3.000	DLTALF	-10.000
◇	400.540	.000	MACH	7.980
		.000	ELEVON	.000
		8.000	PG	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

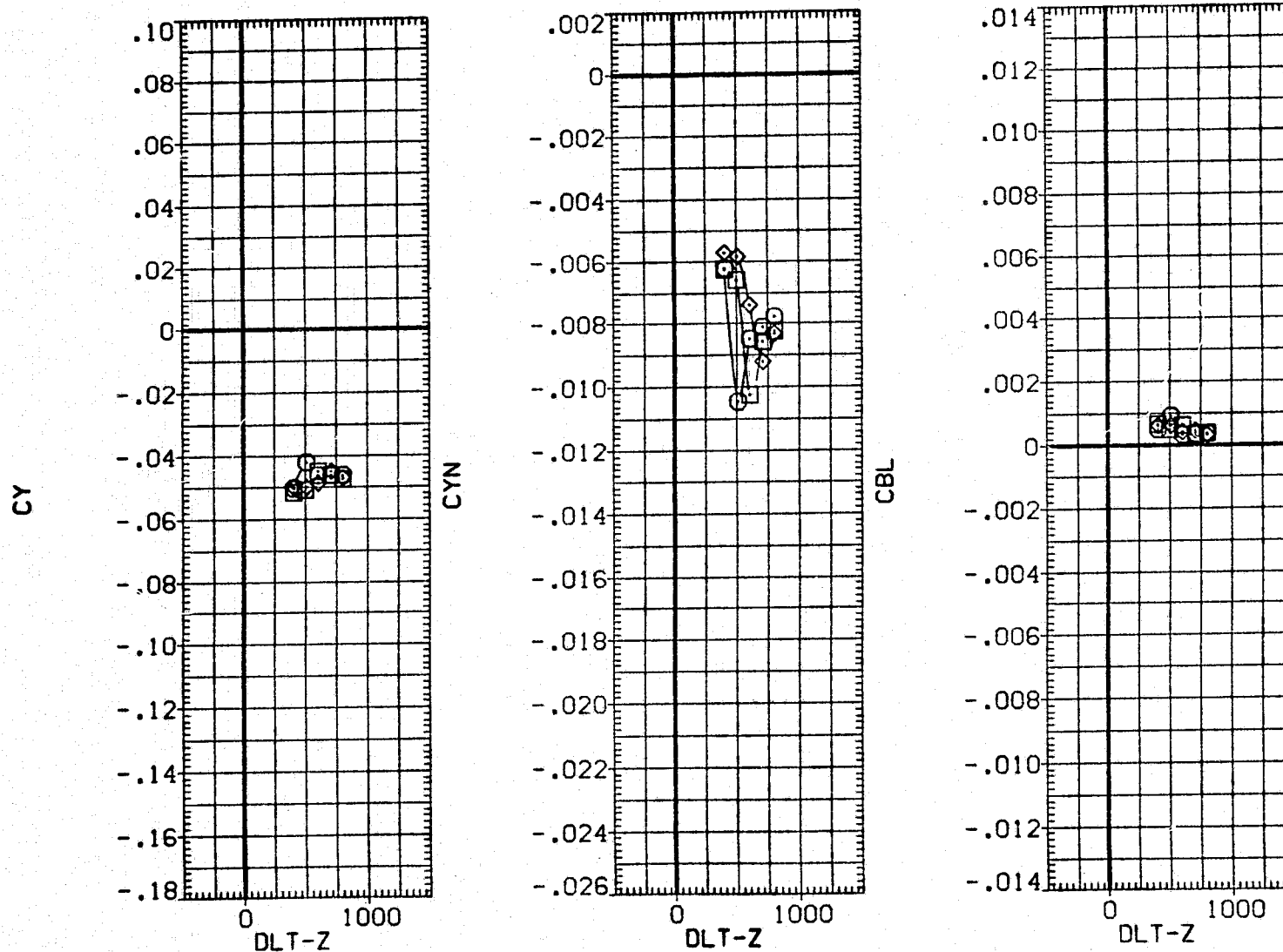


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR170)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.412		.000	-10.000	
□	200.290	BETA	3.000	DLTALF	-15.000
◇	400.490	DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GE	8.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

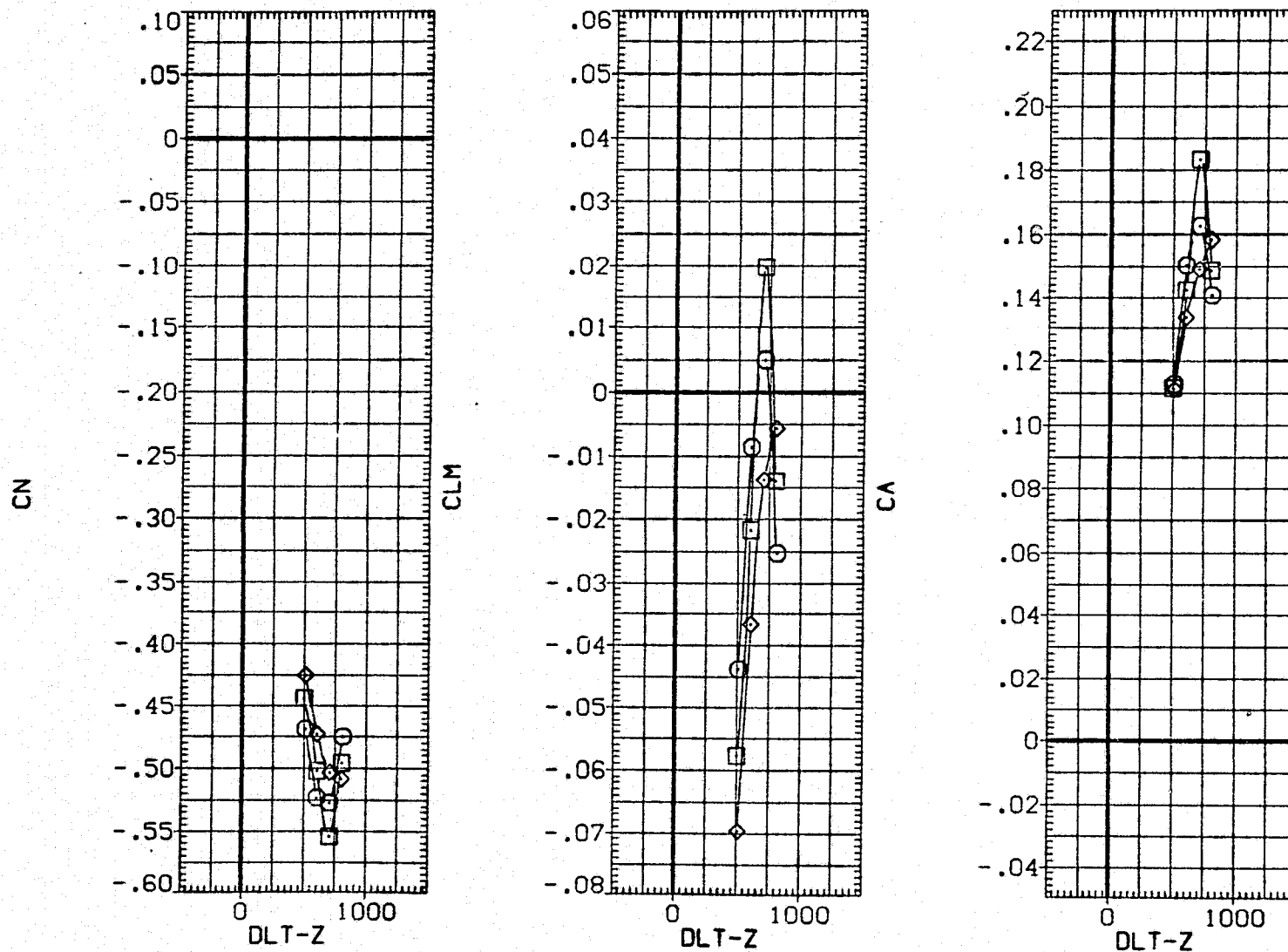


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR170)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
	.412	BETA	.000	ALPHA
	200.290	DLTBT	3.000	DLTALF
	400.490	AILRON	.000	MACH
		GRID	8.000	ELEVON
				PG

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

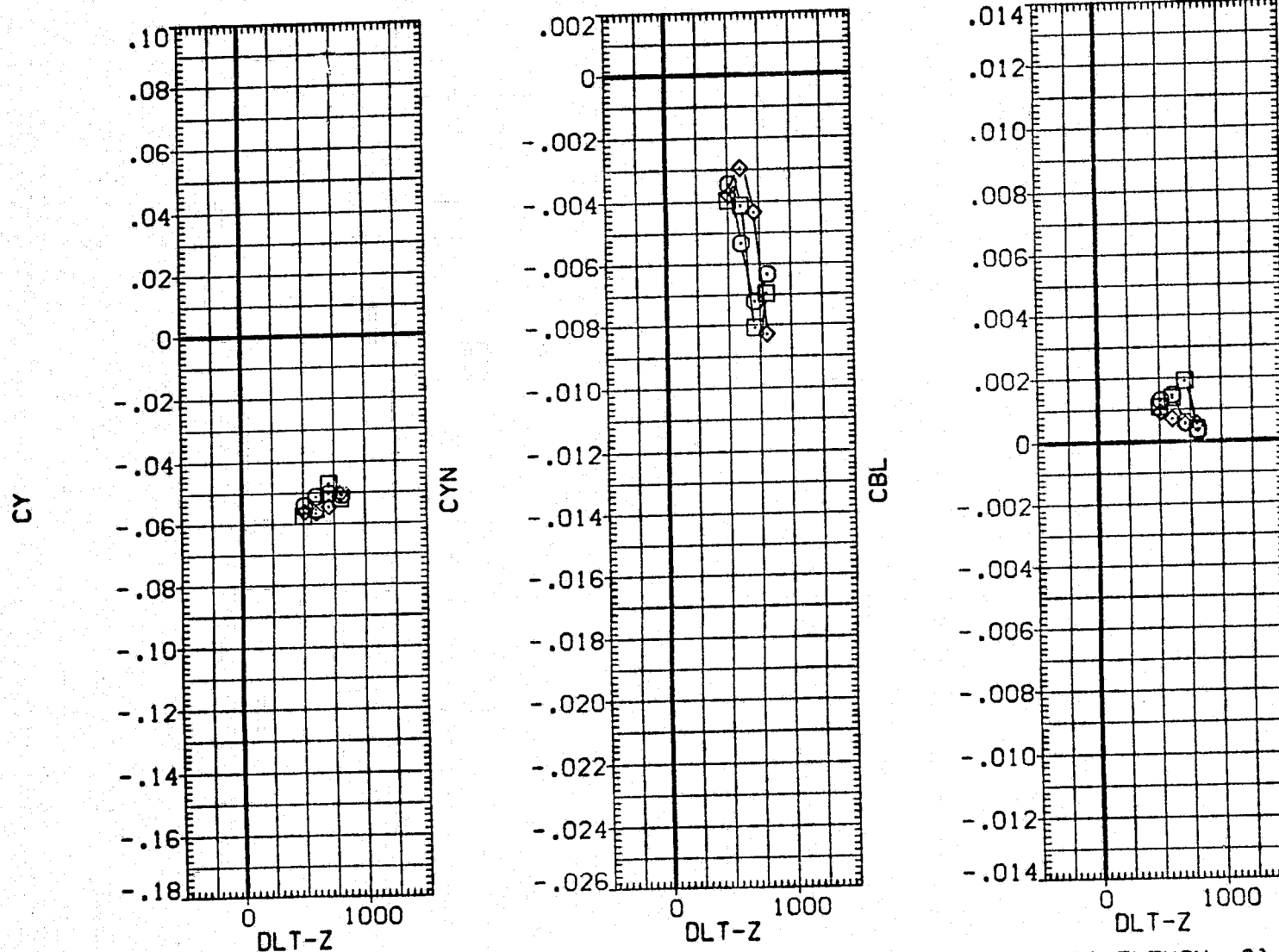


FIGURE 28 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR155)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	.000	ALPHA	.000
○	.501	BETA	.000	DLTALF	.000
		DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	-20.000
		GRID	21.000	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

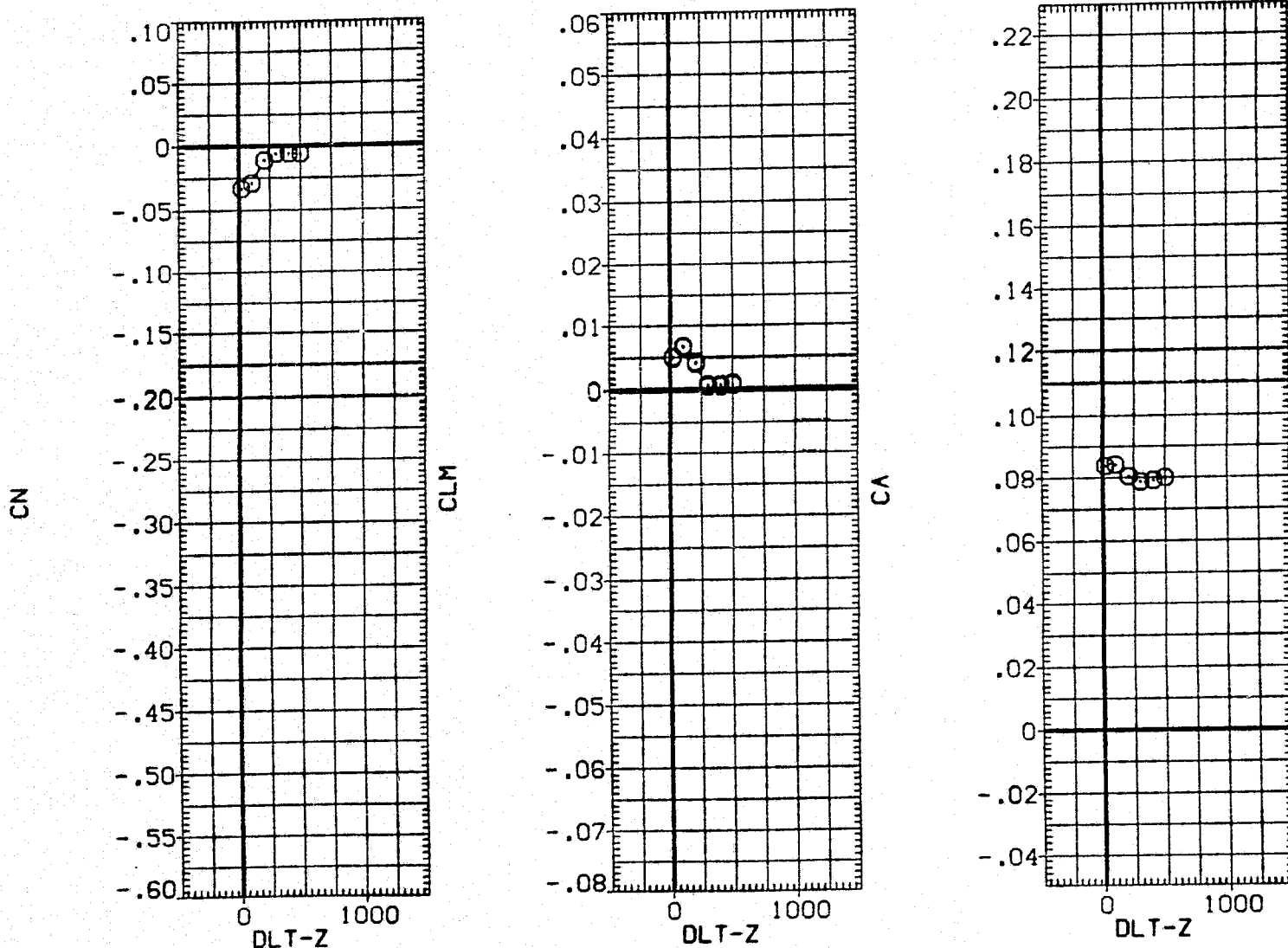


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR155)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
O	.501	.000	BETA	.000	
		.000	DLTBTA	.000	
		.000	ATLTON	.000	
		.000	GRID	21.000	
		.000	MACH	7.980	
		.000	ELEVON	-20.000	
		.000	P0	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

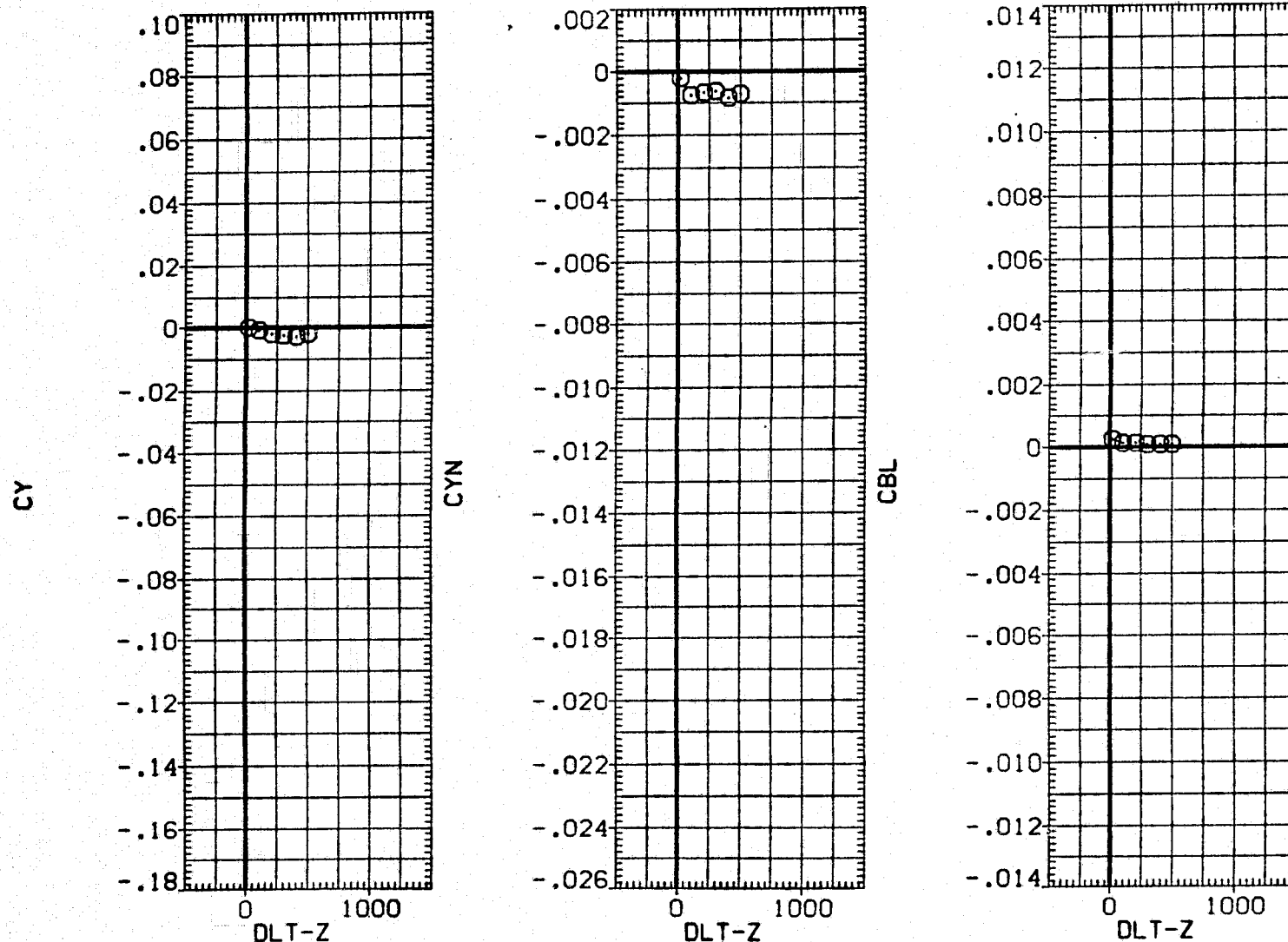


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR156)

SYMBOL	DLT-X	PARAMETRIC VALUES			
○	.508	DLT-Y	.000	ALPHA	.000
		BETA	.000	DLTALF	-10.000
		DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	-20.000
		GRID	21.000	PG	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

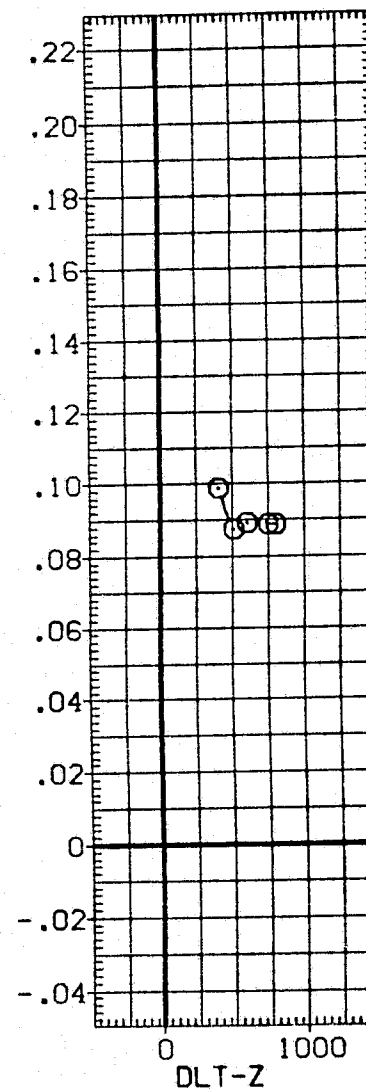
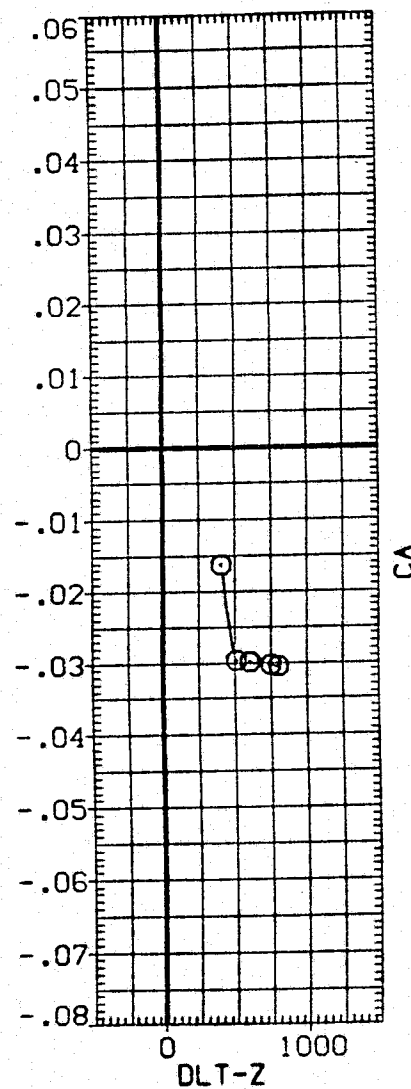
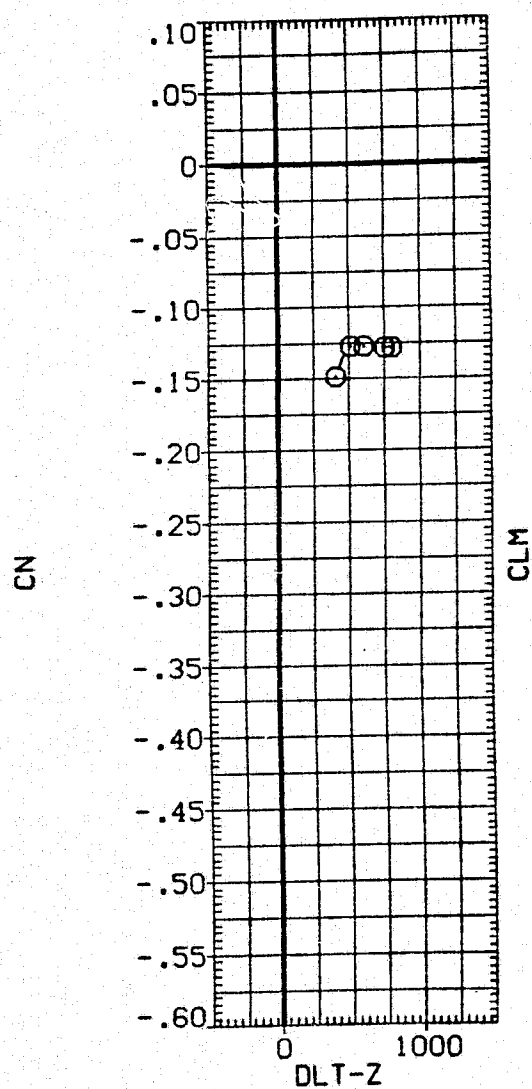


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR156)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
O	.508	BETA	.000	DLTALF	-10.000
		DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	-20.000
		GRID	21.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

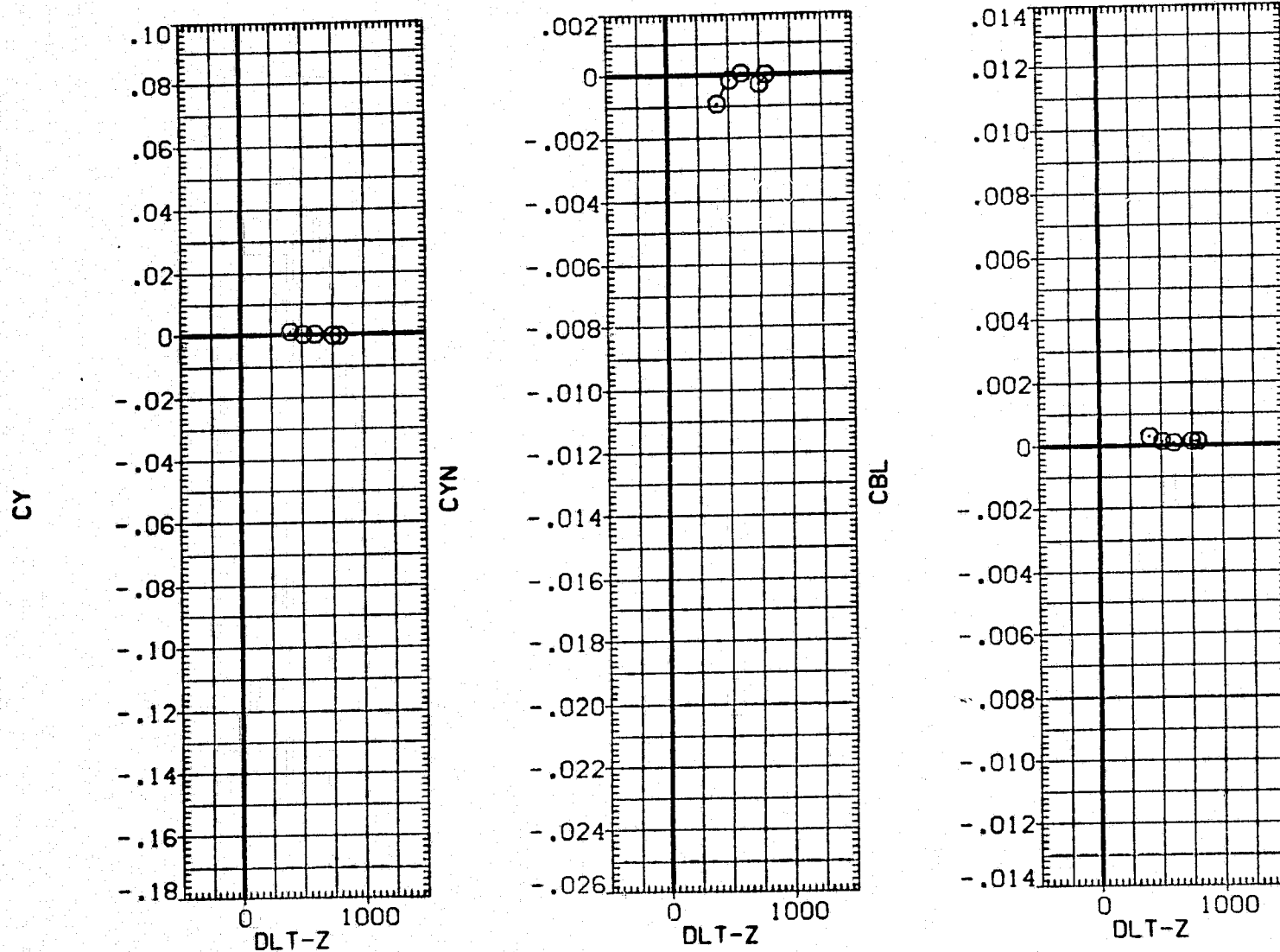


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR157)

SYMBOL
O

DLT-X
.392

PARAMETRIC VALUES			
DLT-Y	.000	ALPHA	.000
BETA	.000	DLTALF	-20.000
DLTBTA	.000	MACH	7.980
AIRLON	.000	ELEVON	-20.000
GRID	21.000	PO	300.000

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

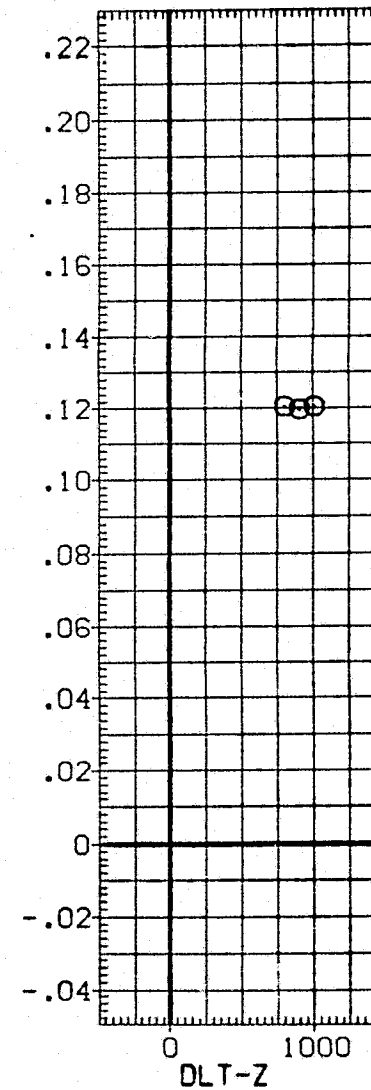
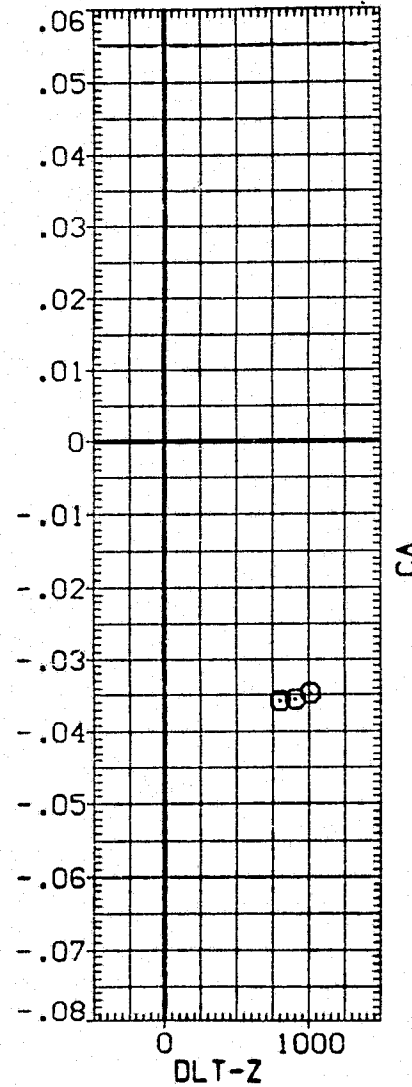
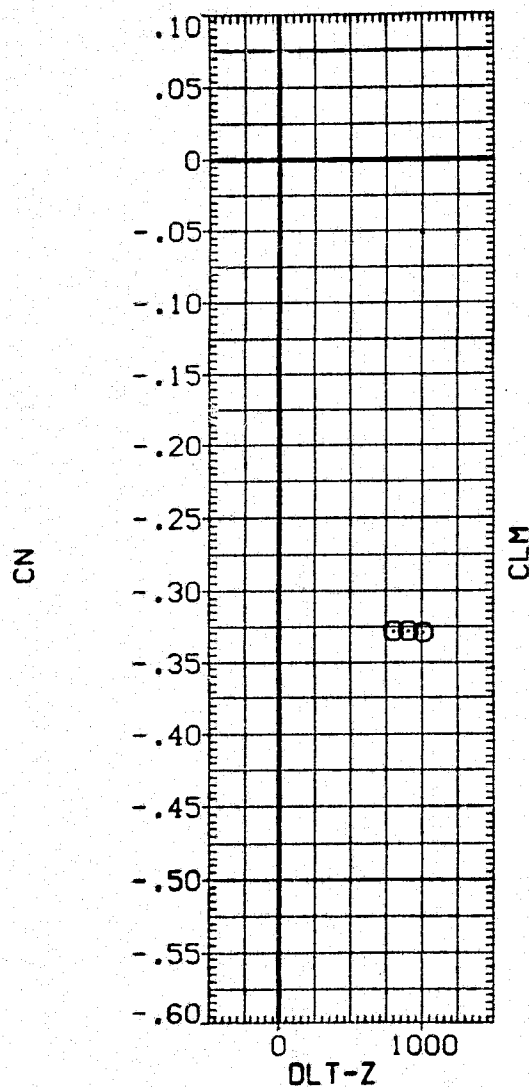


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR157)

SYMBOL	DLT-X	PARAMETRIC VALUES
O	.392	DLT-Y .000 ALPHA .000
		BETA .000 DLTALF -20.000
		DLTBTA .000 MACH 7.980
		AILRON .000 ELEVON -20.000
		GRID 21.000 PO 300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

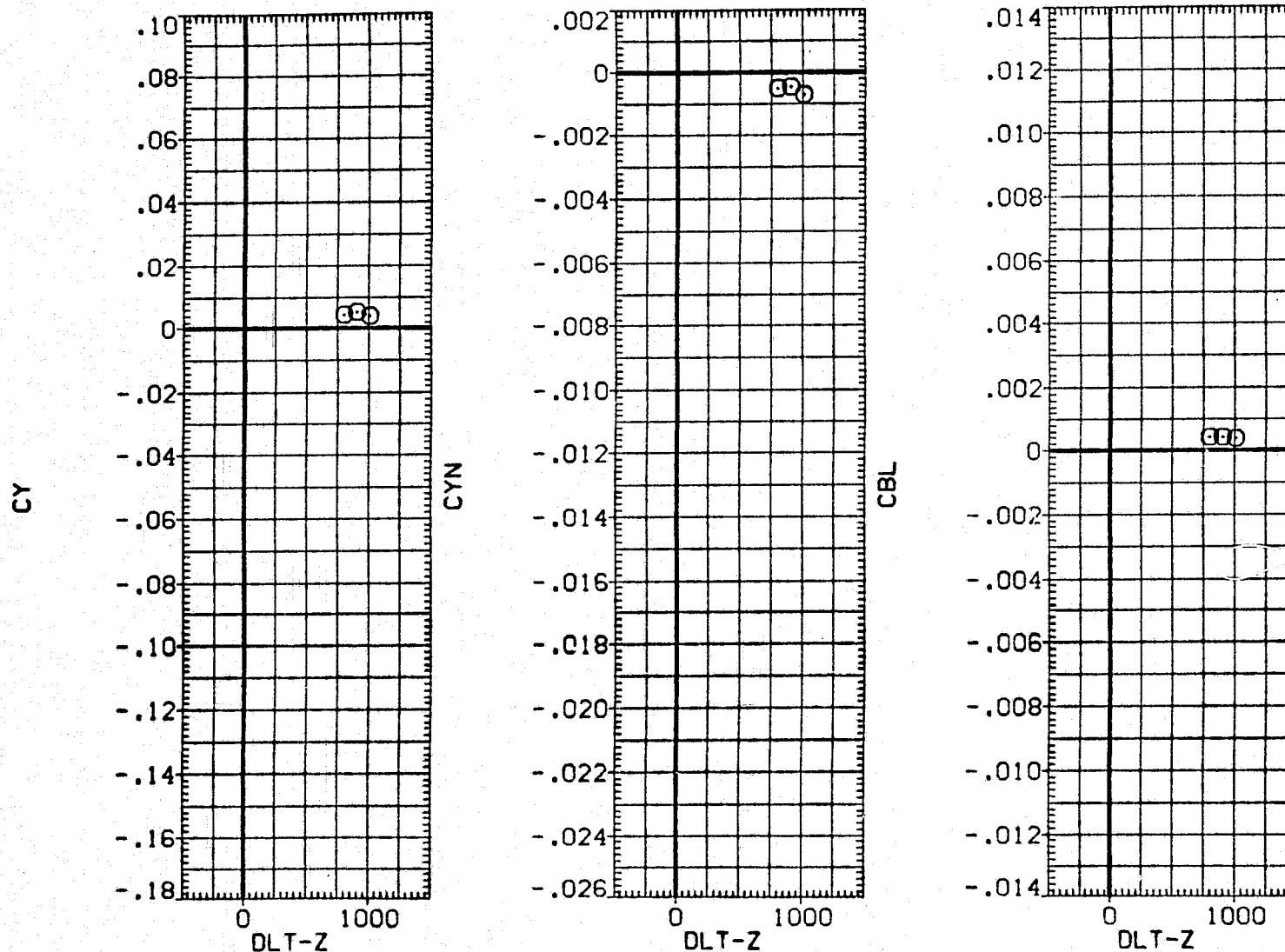


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR158)

SYMBOL	DLT-X	PARAMETRIC VALUES	
O	.431	DLT-Y .000	ALPHA -5.000
		BETA .000	DLTALF .000
		DLTBTA .000	MACH 7.980
		AILRON .000	ELEVON -20.000
		GRID 20.000	PG 300.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

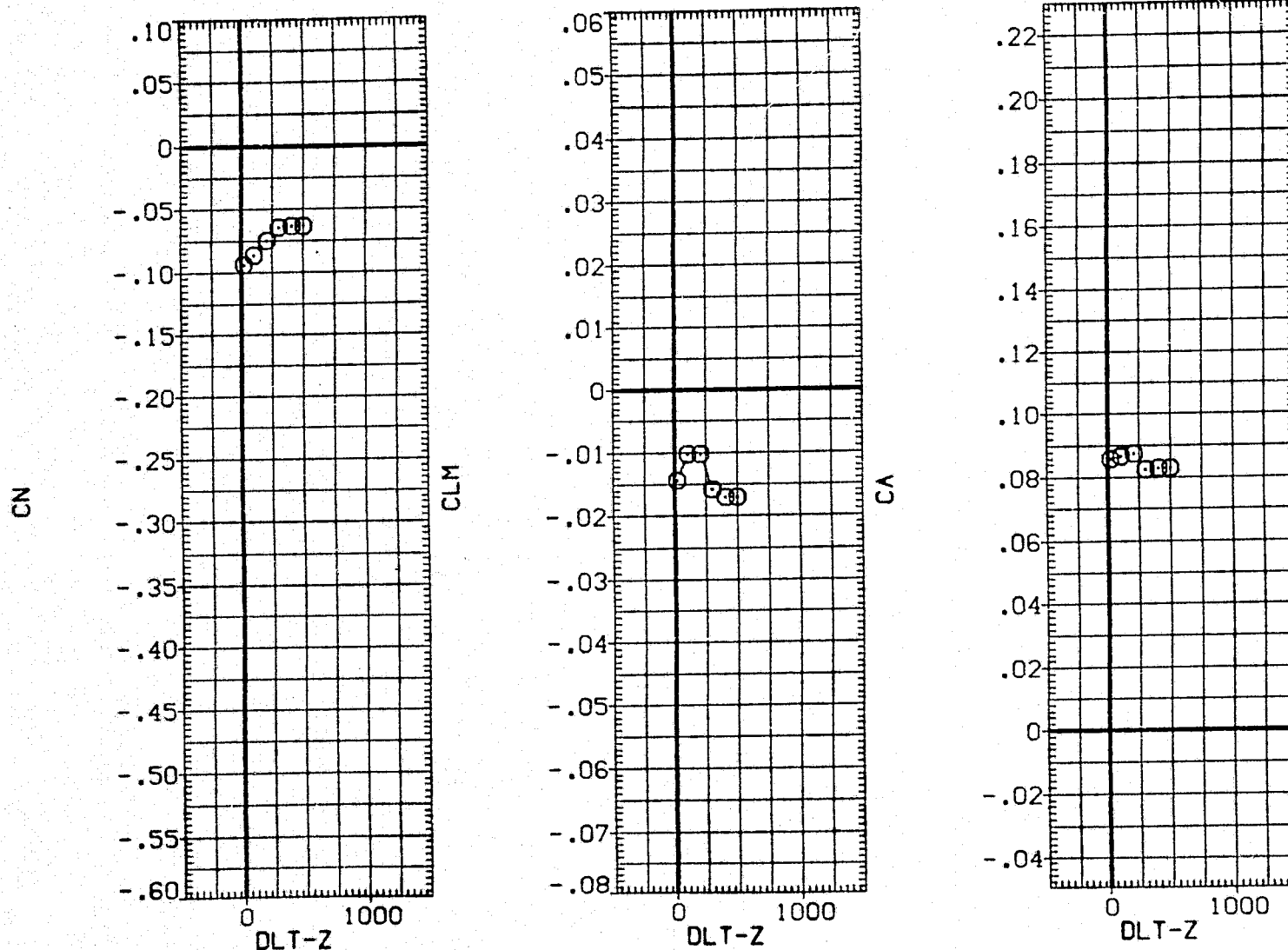


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR158)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
O	.431	BETA	.000	-5.000	
		DLTBT	.000	DLTALF	.000
		AILRON	.000	MACH	7.980
		GRID	20.000	ELEVON	-20.000
				P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

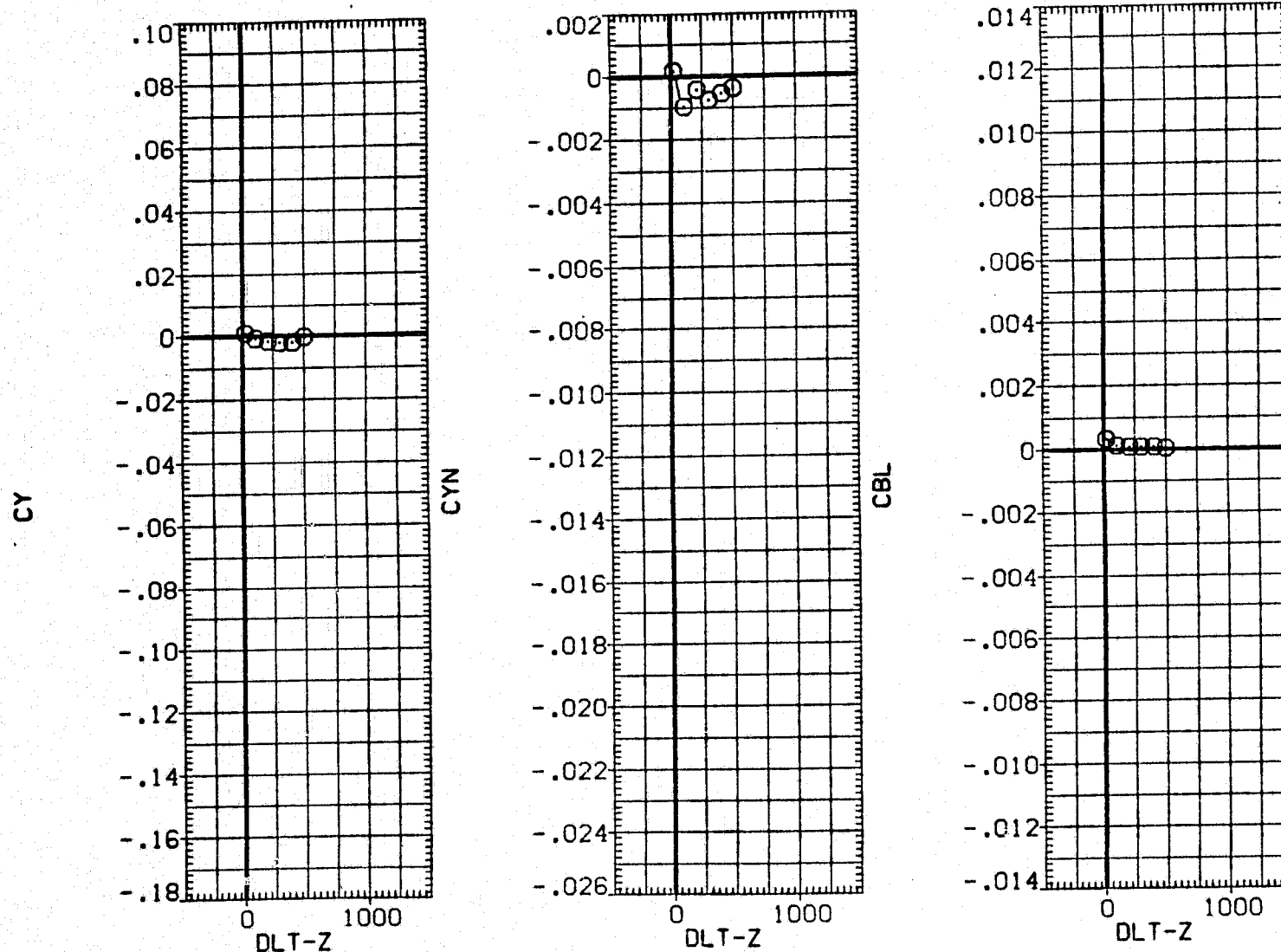


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR159)

SYMBOL
O

DLT-X
.407

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES

.000	ALPHA	-5.000
.000	DLTALF	-10.000
.000	MACH	7.980
.000	ELEVON	-20.000
20.000	PG	300.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

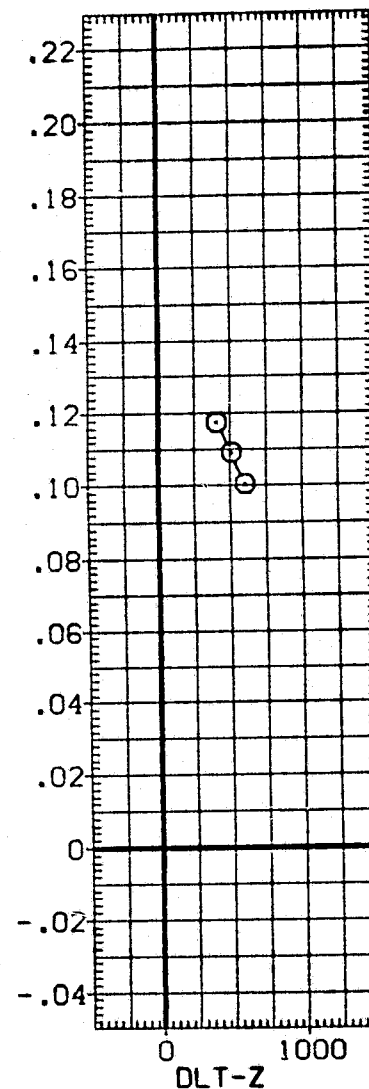
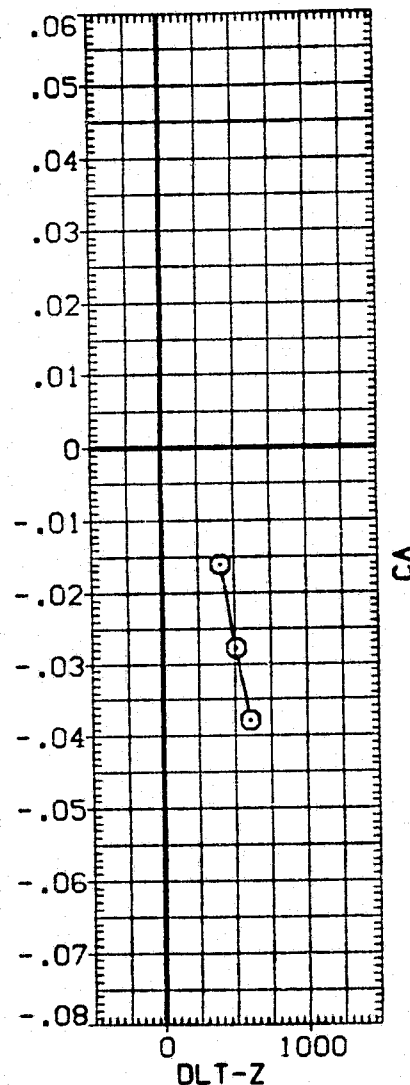
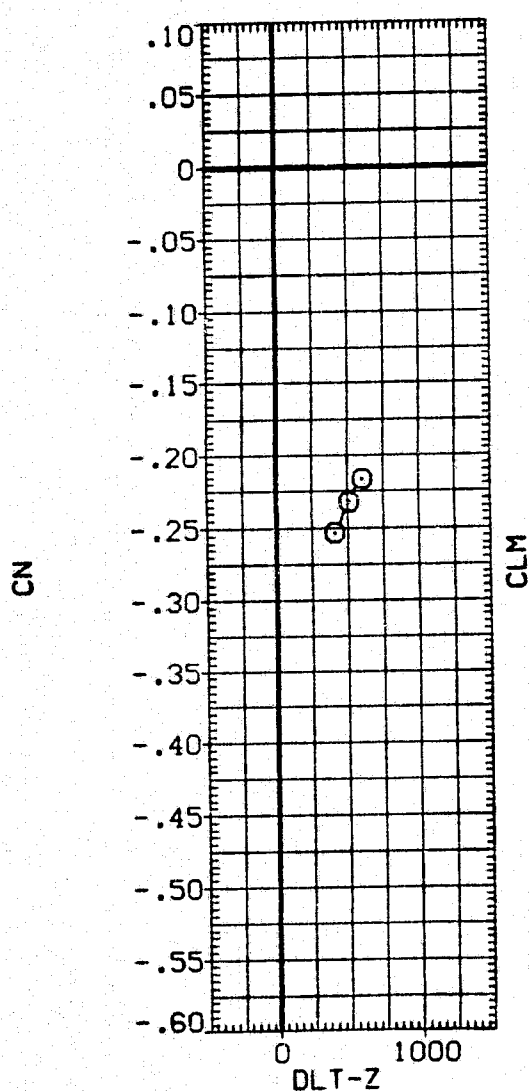


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR159)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	ELEVON
○	.407	BETA	.000	-5.000	
		DLTBTA	.000	-10.000	
		AILRON	.000	7.980	
		GRID	20.000	-20.000	
			PO	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

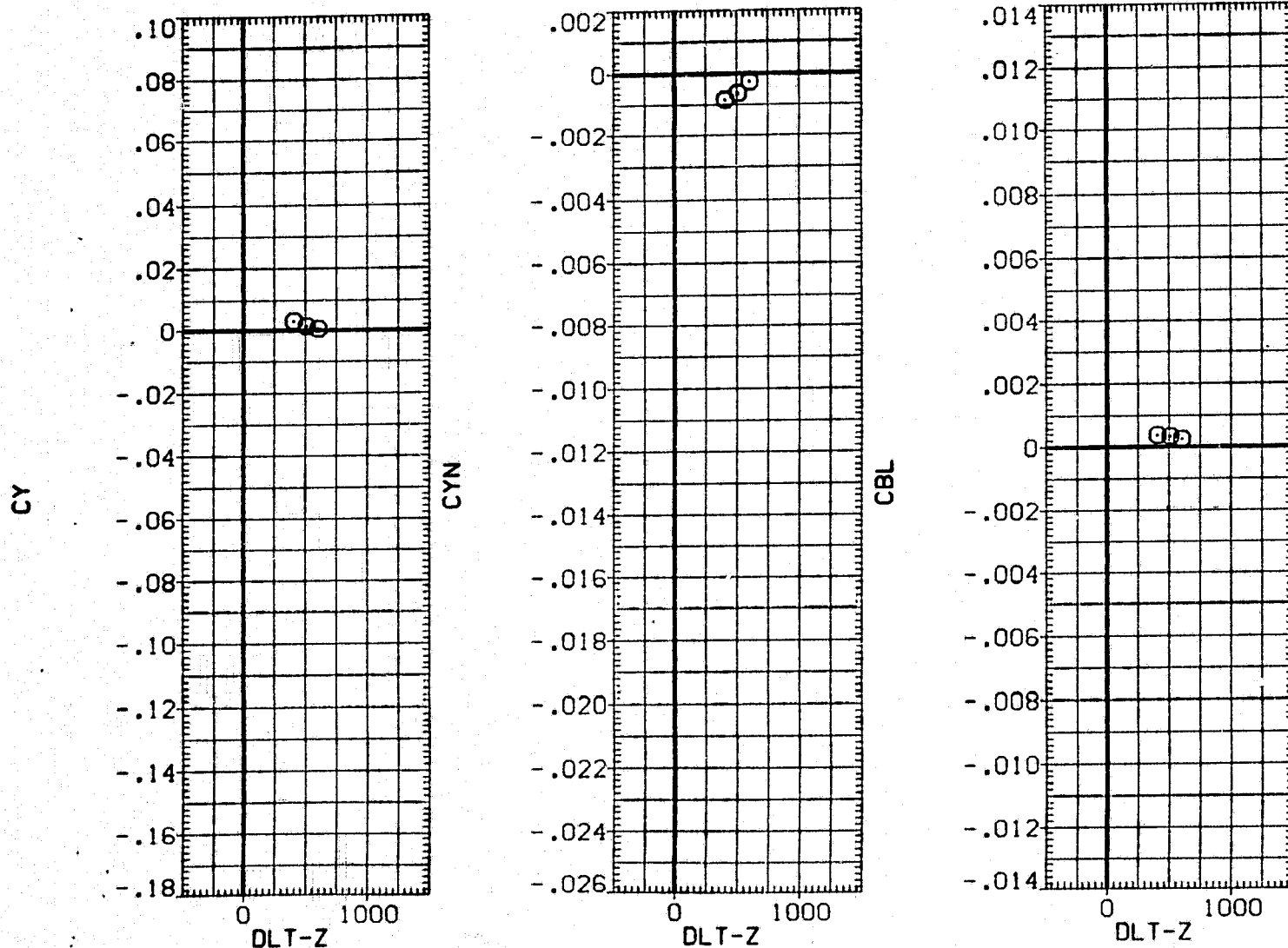


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR160)

SYMBOL	DLT-X	DLT-Y	BETA	DLTBTA	AIRLON	GRID	PARAMETRIC VALUES	ALPHA	DLTALF	MACH	ELEVON	P0
O	.338	.000	.000	.000	.000	20.000		-5.000	-20.000	7.980	-20.000	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

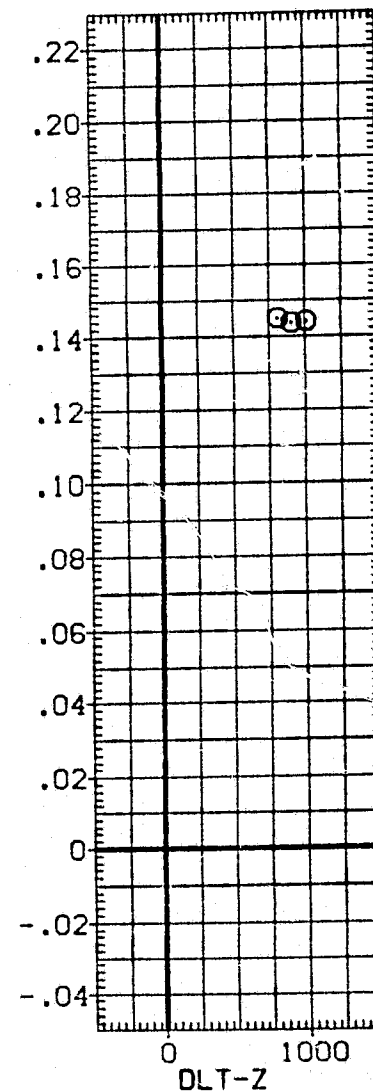
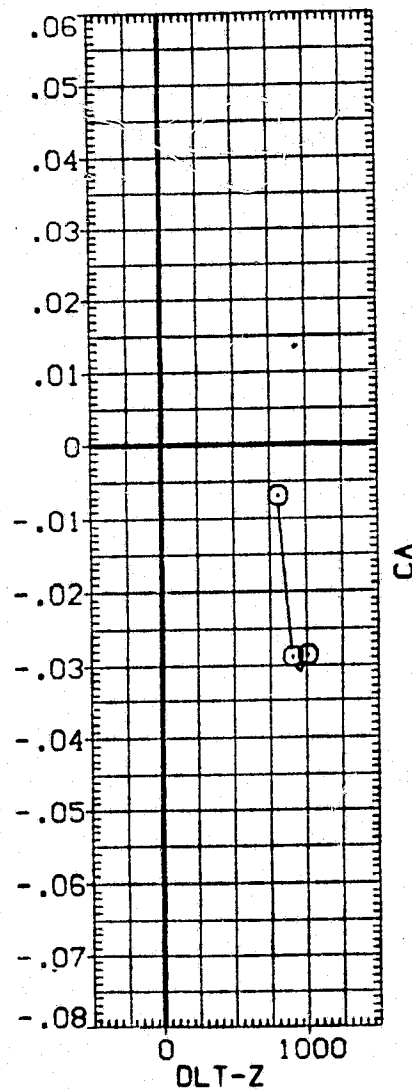
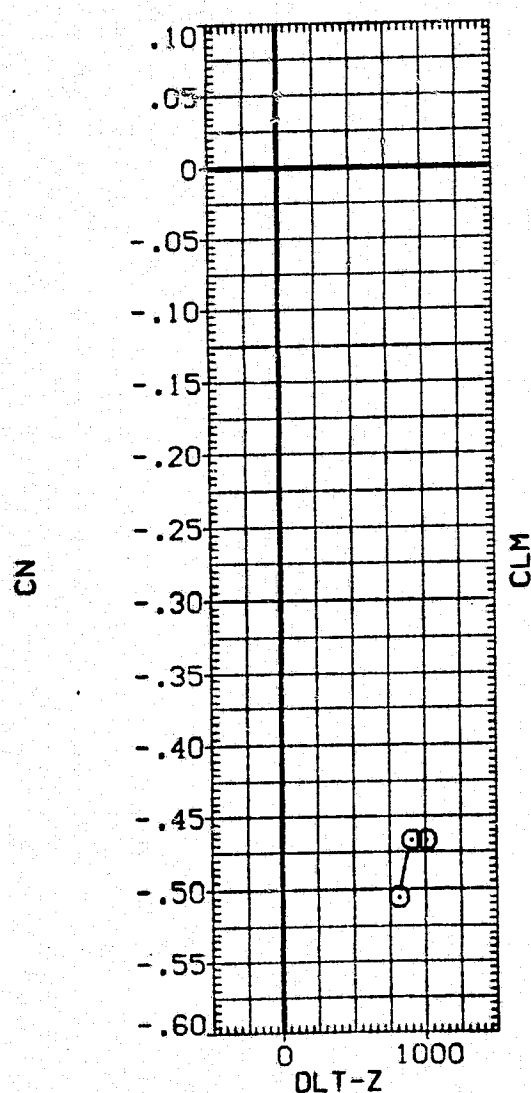


FIGURE 29 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR160)

SYMBOL	DLT-X	DLT-Y	DLT-Z	PARAMETRIC VALUES
O	.338	.000	.000	ALPHA -5.000
		BETA .000	DLTALF -20.000	
		DLTSTA .000	MACH 7.980	
		AILRON .000	ELEVON -20.000	
		GRID 20.000	PG 300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

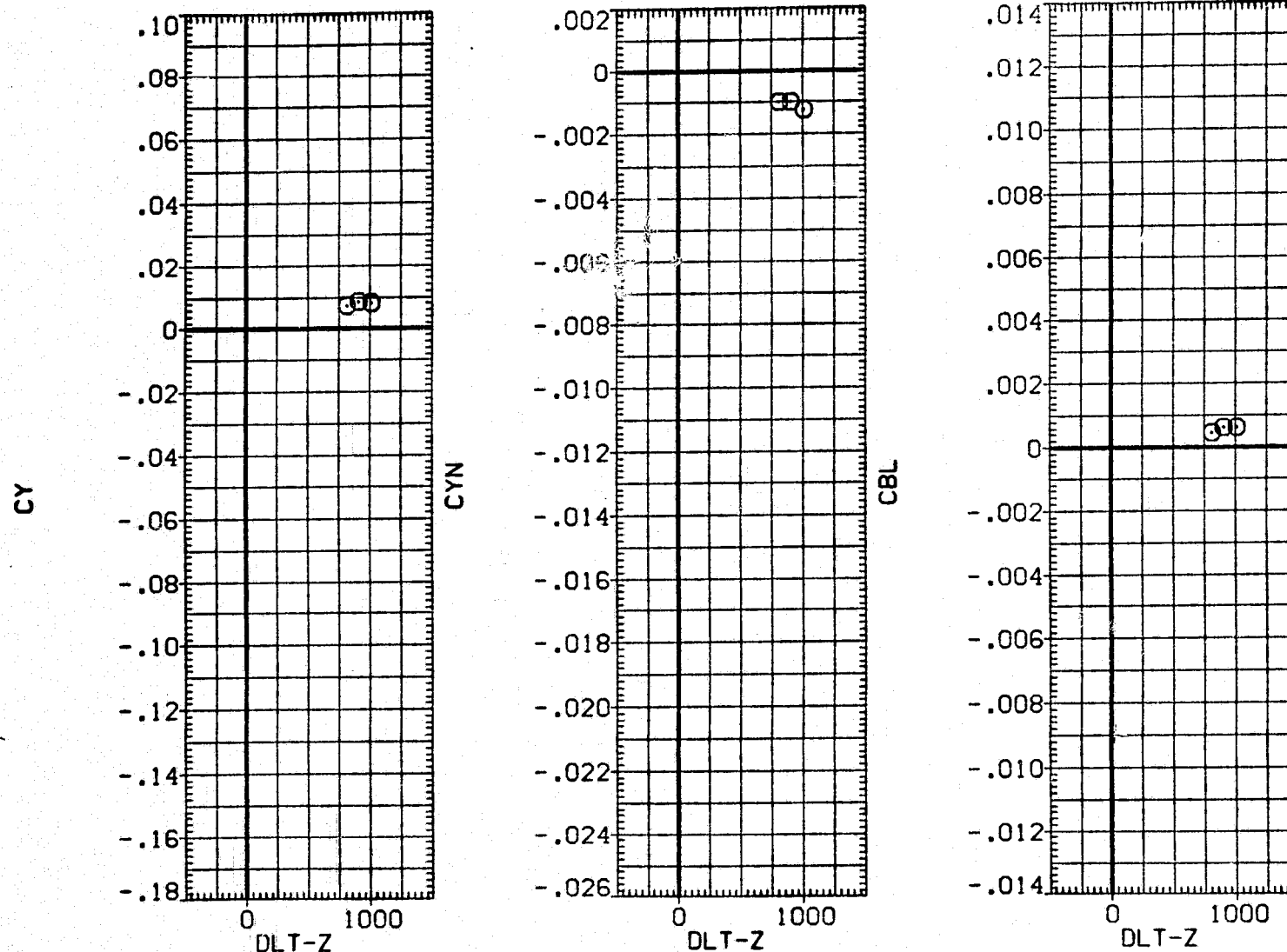


FIGURE 29. EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR161)

SYMBOL	DLT-X	PARAMETRIC VALUES			
○	.574	DLT-Y	.000	ALPHA	.000
		BETA	.000	DLTALF	.000
		DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	-40.000
		GRID	21.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

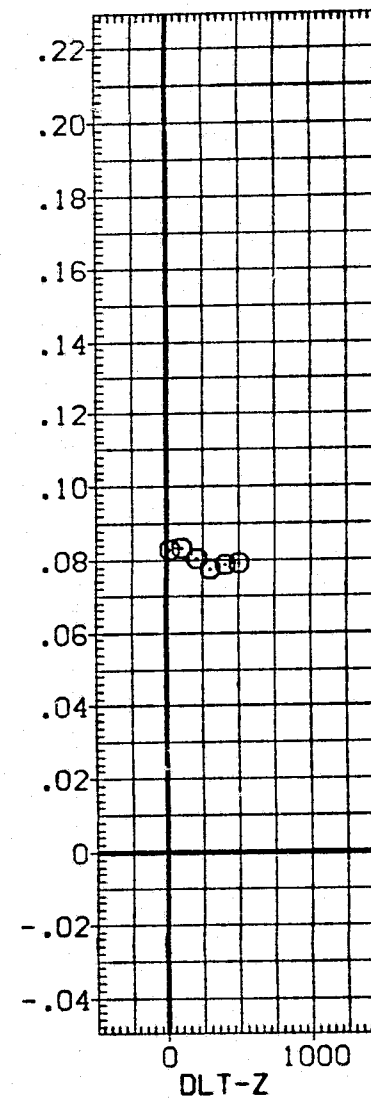
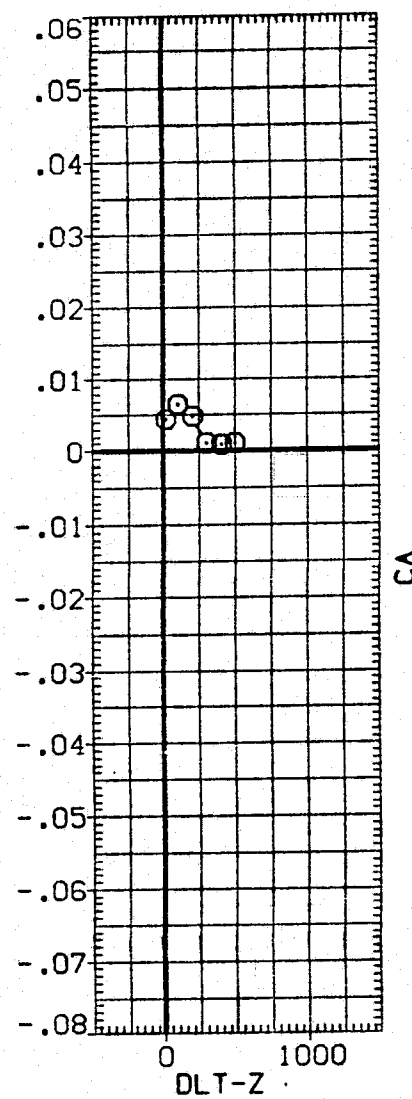
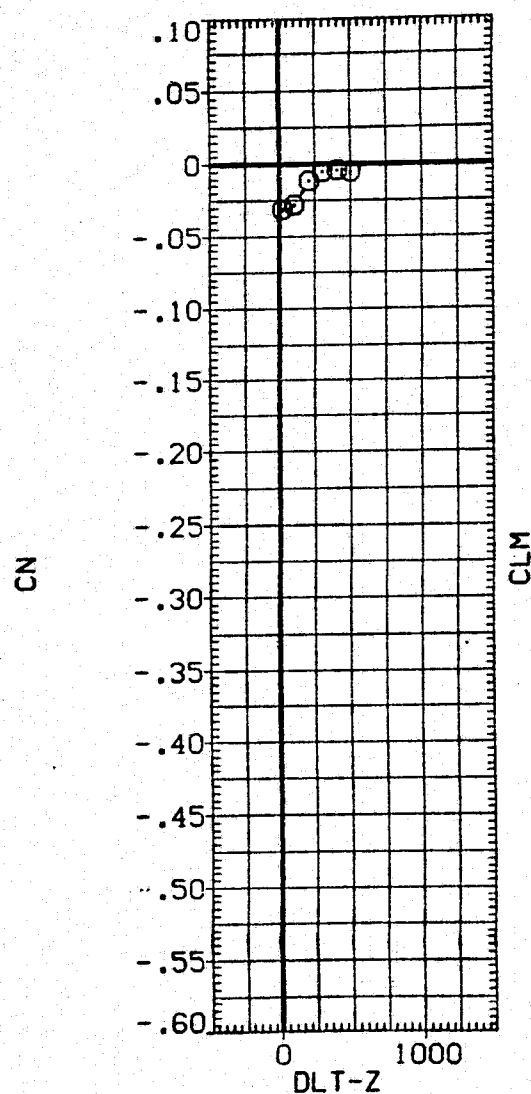


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR161)

SYMBOL		PARAMETRIC VALUES	
DLT-X	.574	DLT-Y	.000
		BETA	.000
		DLTBT	.000
		AILRON	.000
		GRID	21.000
		ALPHA	.000
		DLTALF	.000
		MACH	7.980
		ELEVON	-40.000
		PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XM RP	1360.1000	IN. YT
YM RP	.0000	IN. YT
ZM RP.	416.4000	IN. ZT
SCALE	.0100	

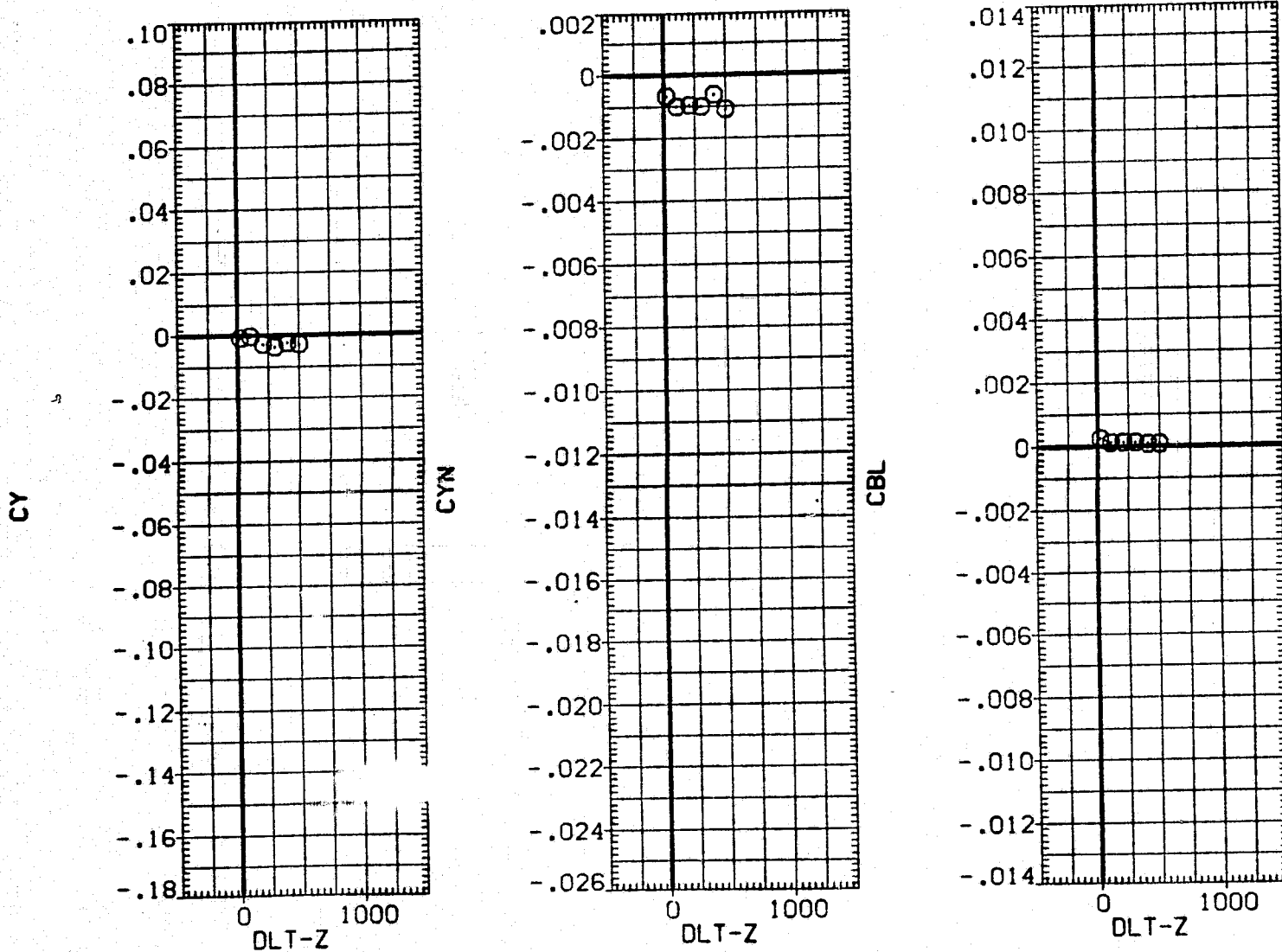


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS ($\Delta Y=0$, MACH=7.98, ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR162)

SYMBOL	DLT-X	PARAMETRIC VALUES	
○	.537	DLT-Y .000	ALPHA .000
		BETA .000	DLTALF -10.000
		DLTBTA .000	MACH 7.980
		AILRON .000	ELEVON -40.000
		GRID 21.000	PO 300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

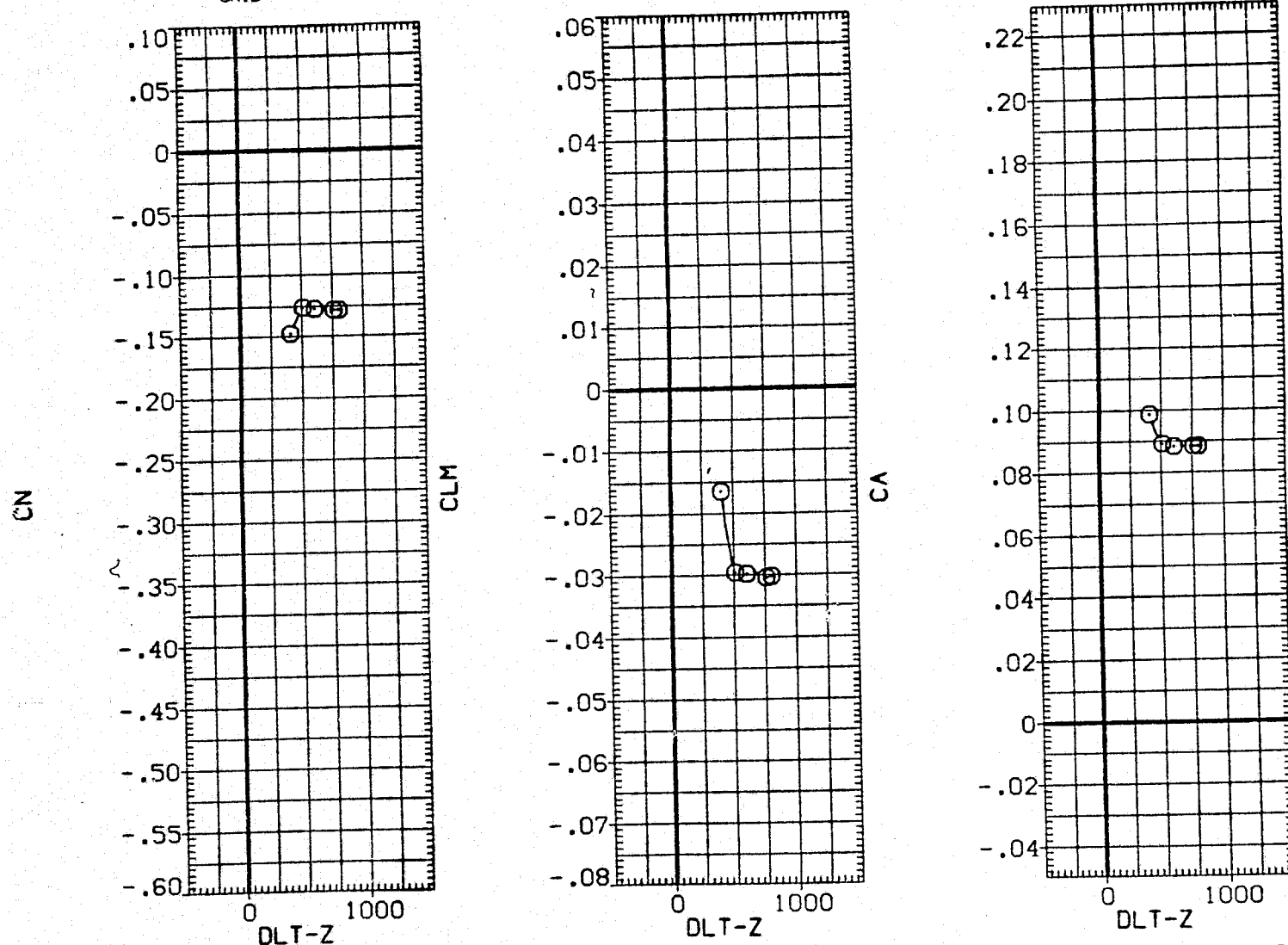


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR162)

SYMBOL	DLT-X	PARAMETRIC VALUES
○	.537	DLT-Y .000 ALPHA .000
		BETA .000 DLTALF -10.000
		DLTBTA .000 MACH 7.980
		AILRON .000 ELEVON -40.000
		GRID 21.000 PG 300.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

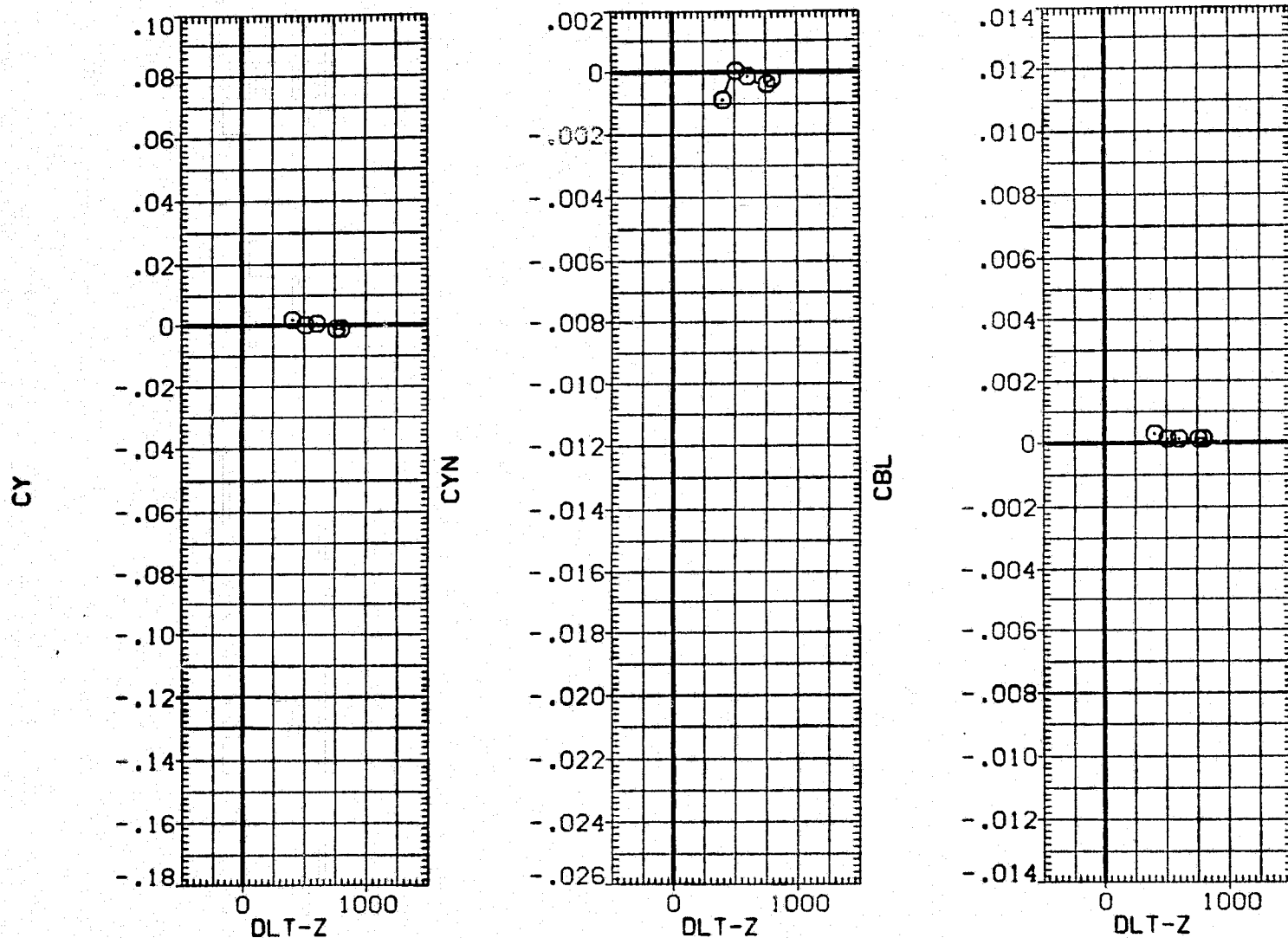


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR163)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.419	.000	BETA	.000
		.000	DLTALF	-20.000
		.000	MACH	7.980
		.000	ELEVON	-40.000
		21.000	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

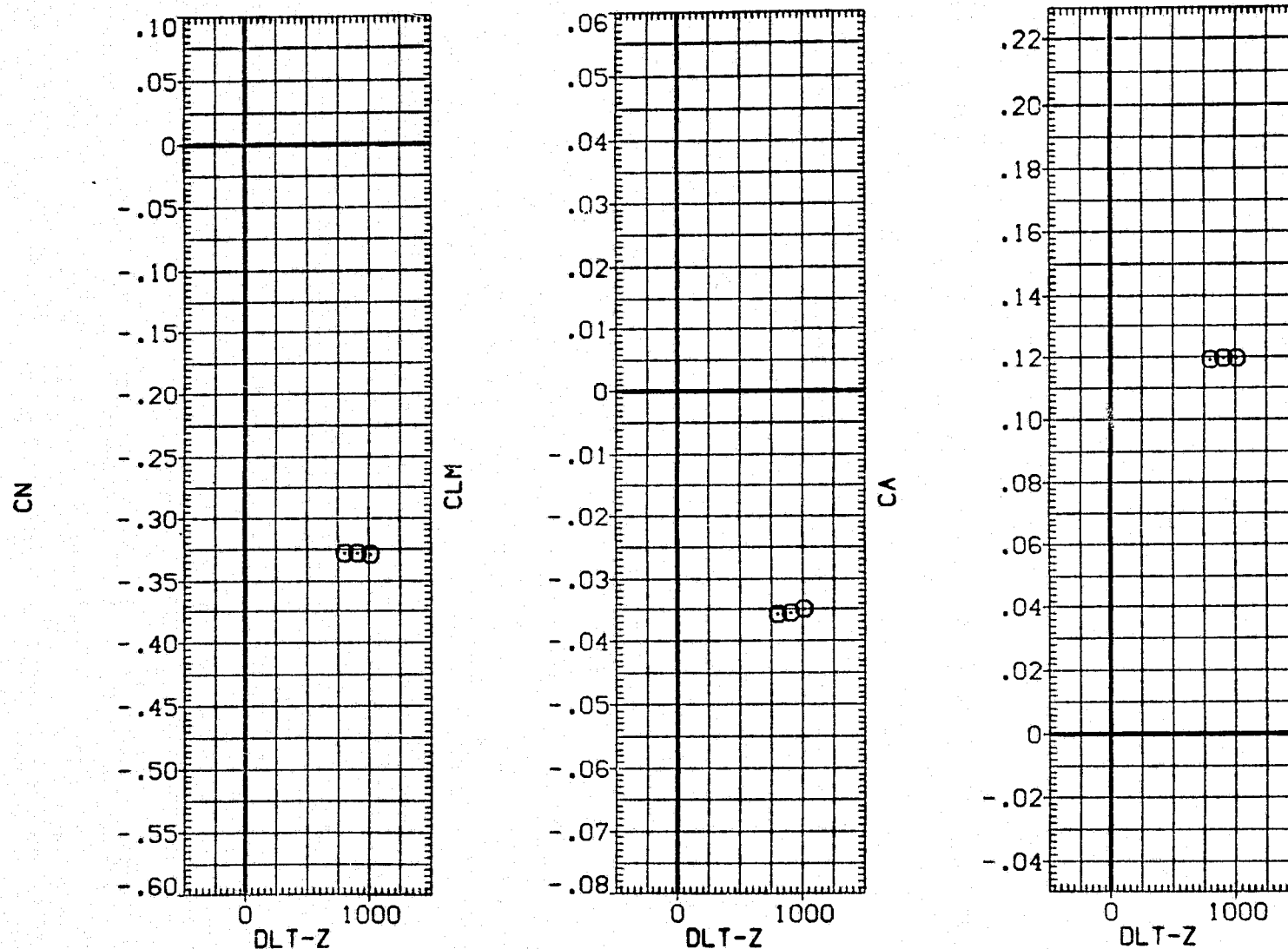


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR163)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.419	.000	DLTALF	-20.000
		.000	MACH	7.980
		.000	ELEVON	-40.000
		21.000	PG	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

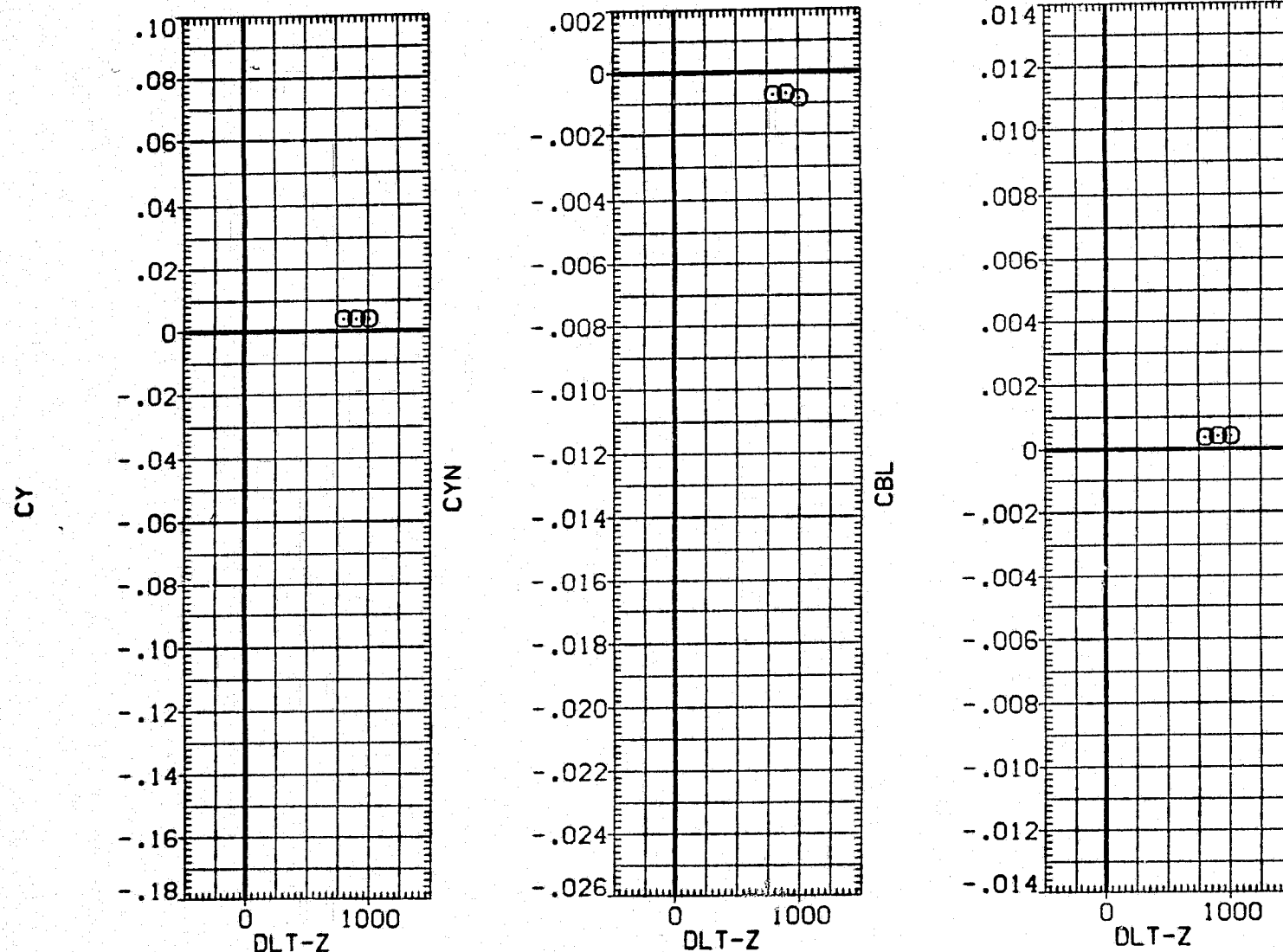


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR164)

SYMBOL	DLT-X	DLT-Y	DLT-Z	PARAMETRIC VALUES
○	.478	.000	.000	ALPHA -5.000
		BETA .000	DLTALF .000	
		DLTBTA .000	MACH 7.980	
		AILRON .000	ELEVON -40.000	
		GRID 20.000	PG 300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

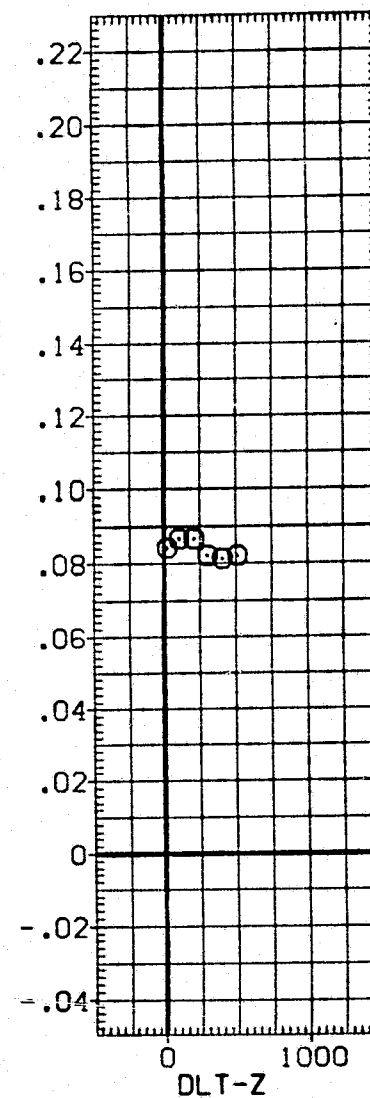
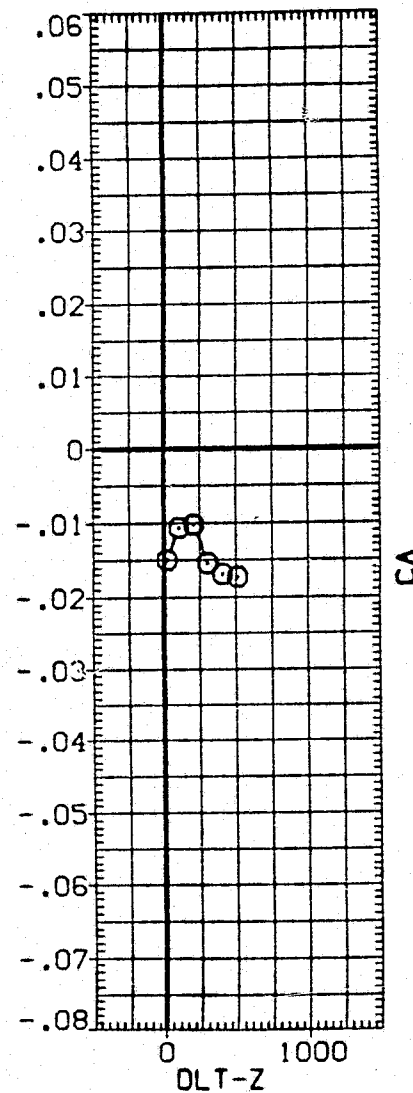
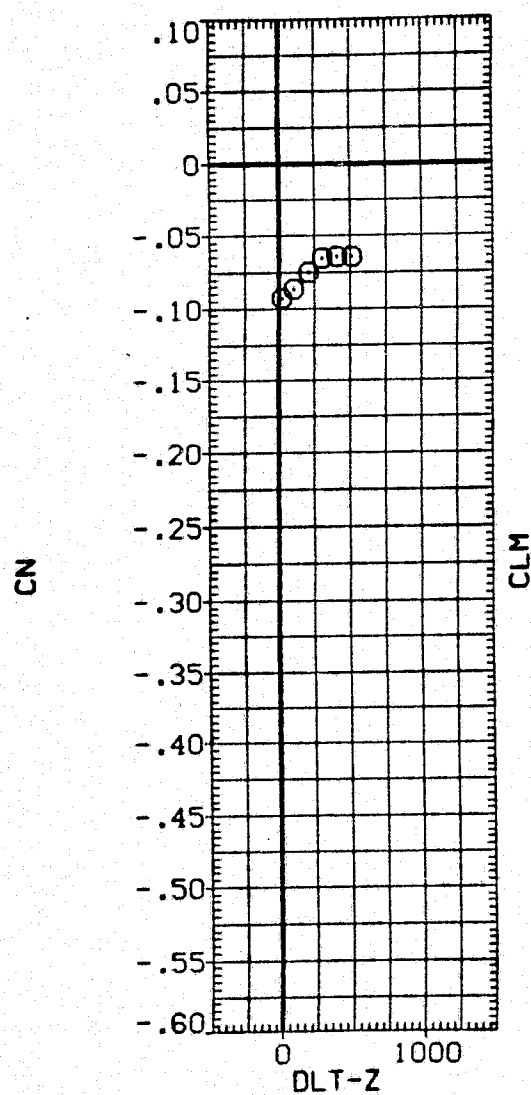


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR164)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
O	.478	BETA	.000	ALPHA -5.000
		DLTBTA	.000	DLTALF .000
		AILRON	.000	MACH 7.980
		GRID	20.000	ELEVON -40.000
				PO 300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

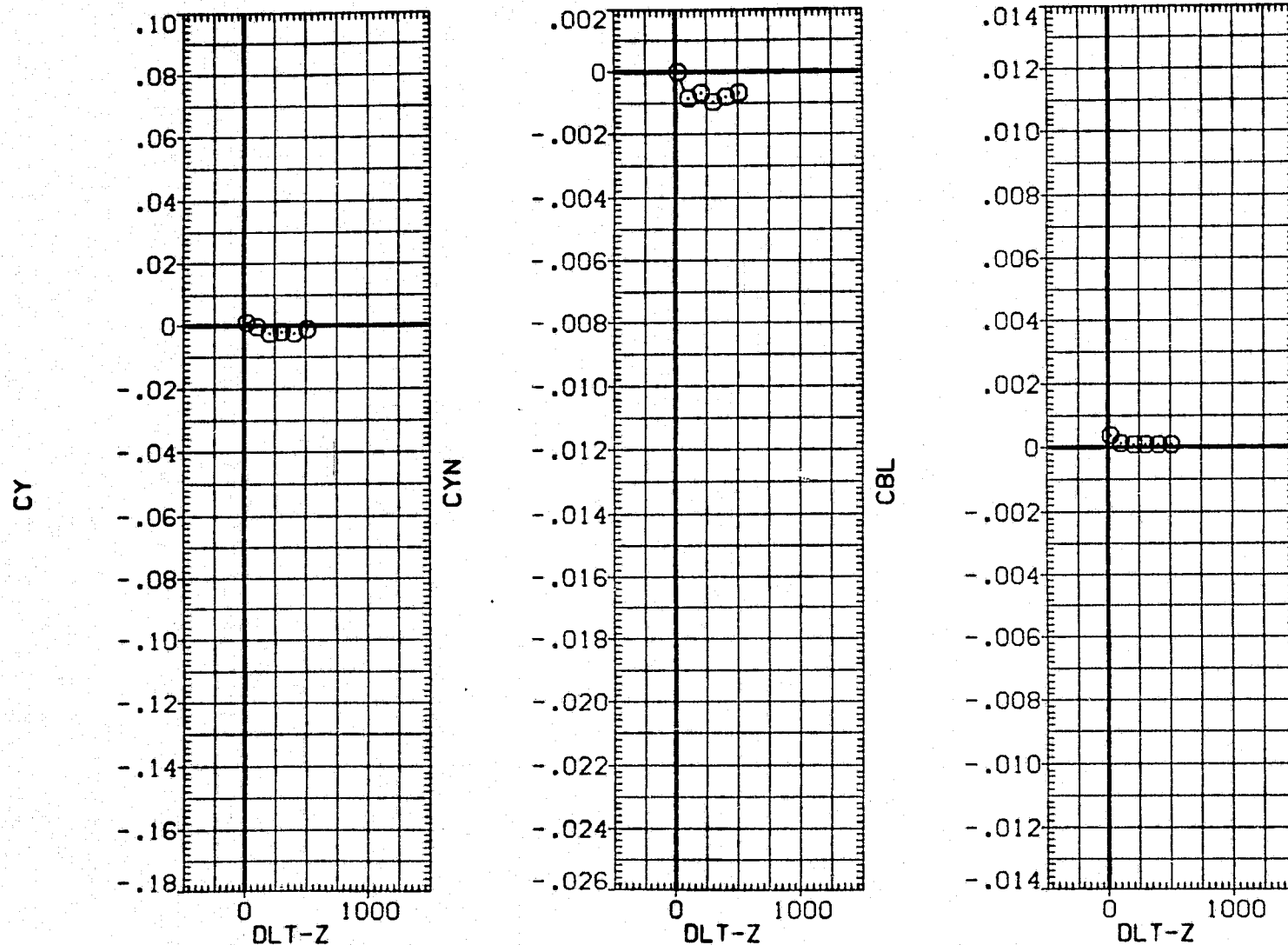


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR165)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.471	BETA	.000	-5.000	
		DLTSTA	.000	DLTALF	-10.000
		AILRON	.000	MACH	7.980
		GRID	20.000	ELEVON	-40.000
				PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

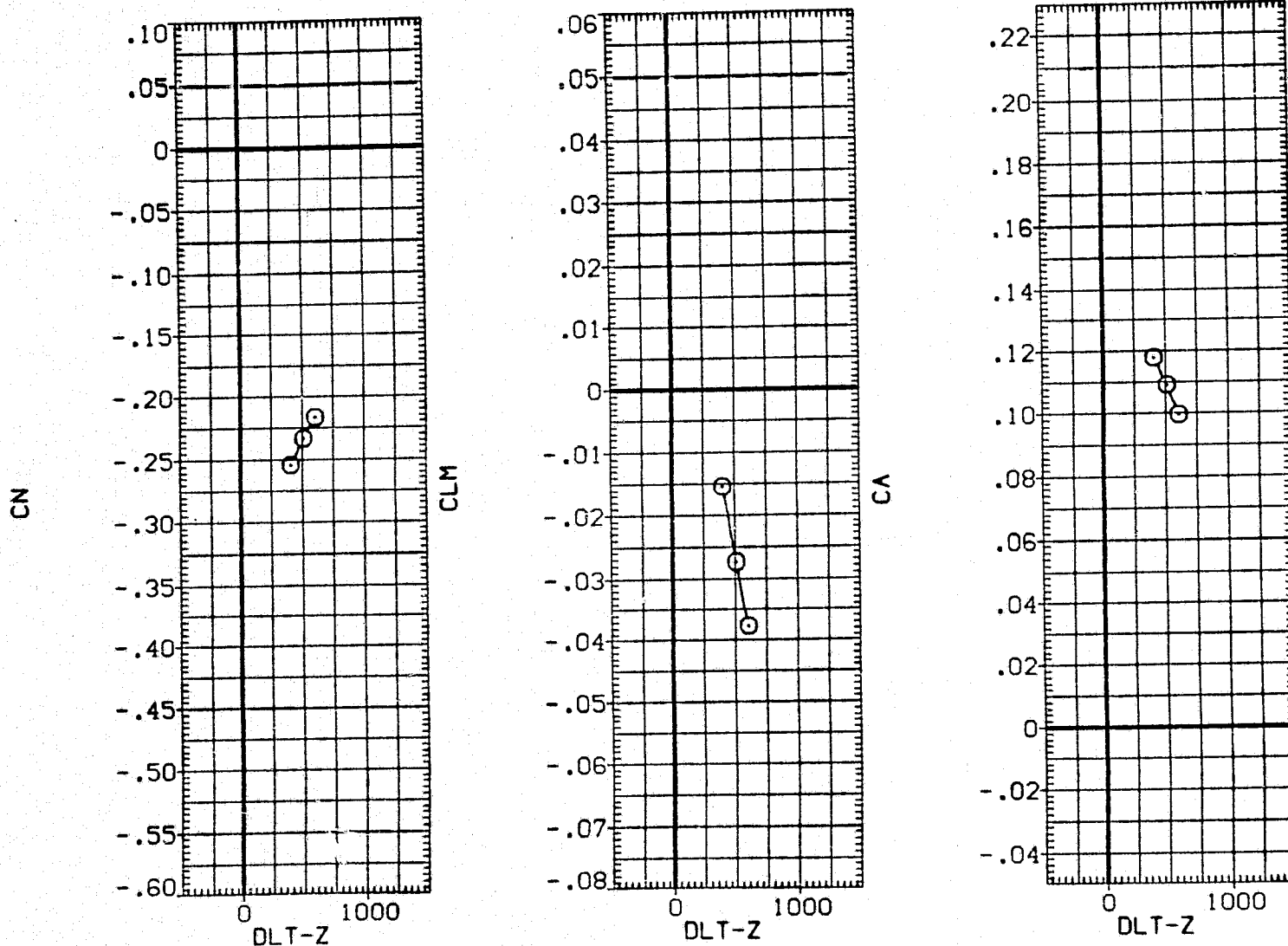


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR165)

SYMBOL	DLT-X	PARAMETRIC VALUES			
O	.471	DLT-Y	.000	ALPHA	-5.000
		BETA	.000	DLTALF	-10.000
		DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	-40.000
		GRID	20.000	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

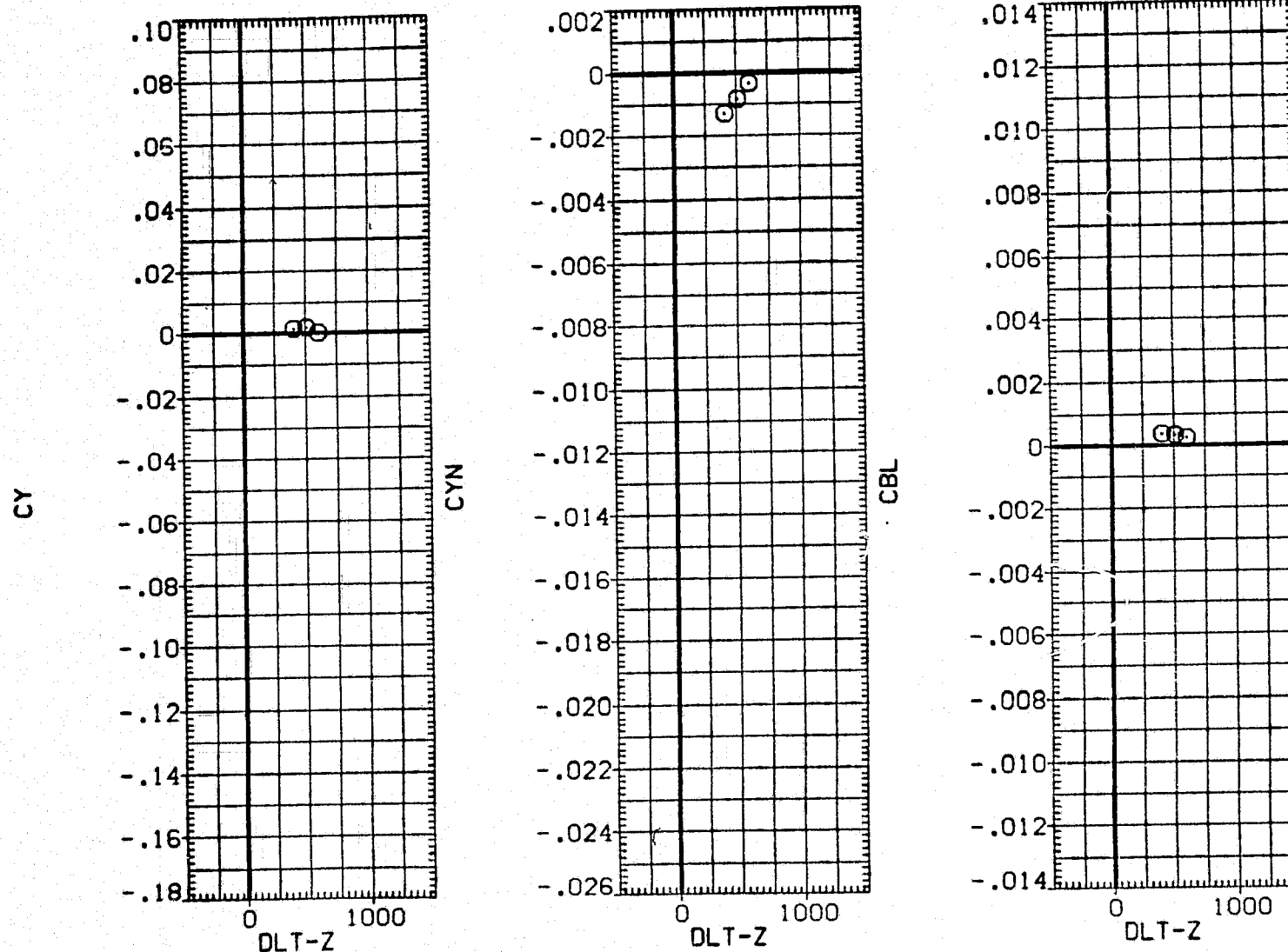


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR166)

SYMBOL	DLT-X	PARAMETRIC VALUES	
O	.352	DLT-Y .000	ALPHA -5.000
		BETA .000	DLTALF -20.000
		DLTBTA .000	MACH 7.980
		AILRON .000	ELEVON -40.000
		GRID 20.000	PO 300.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRF	1360.1000 IN. XT
YMRF	.0000 IN. YT
ZMRF	416.4000 IN. ZT
SCALE	.0100

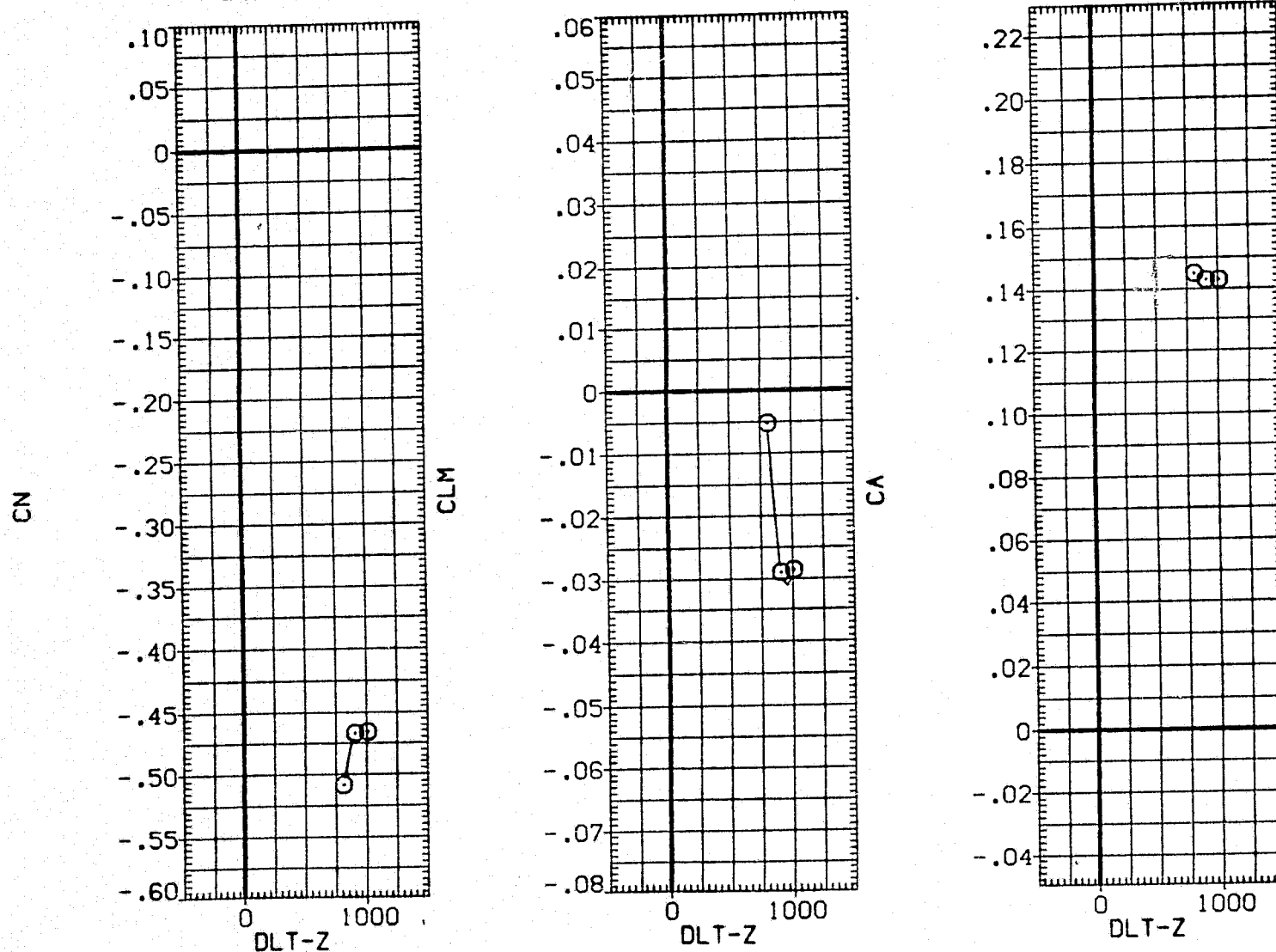


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR166)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.352		.000	-5.000	
		BETA	.000	DLTALF	-20.000
		DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	-40.000
		GRID	20.000	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

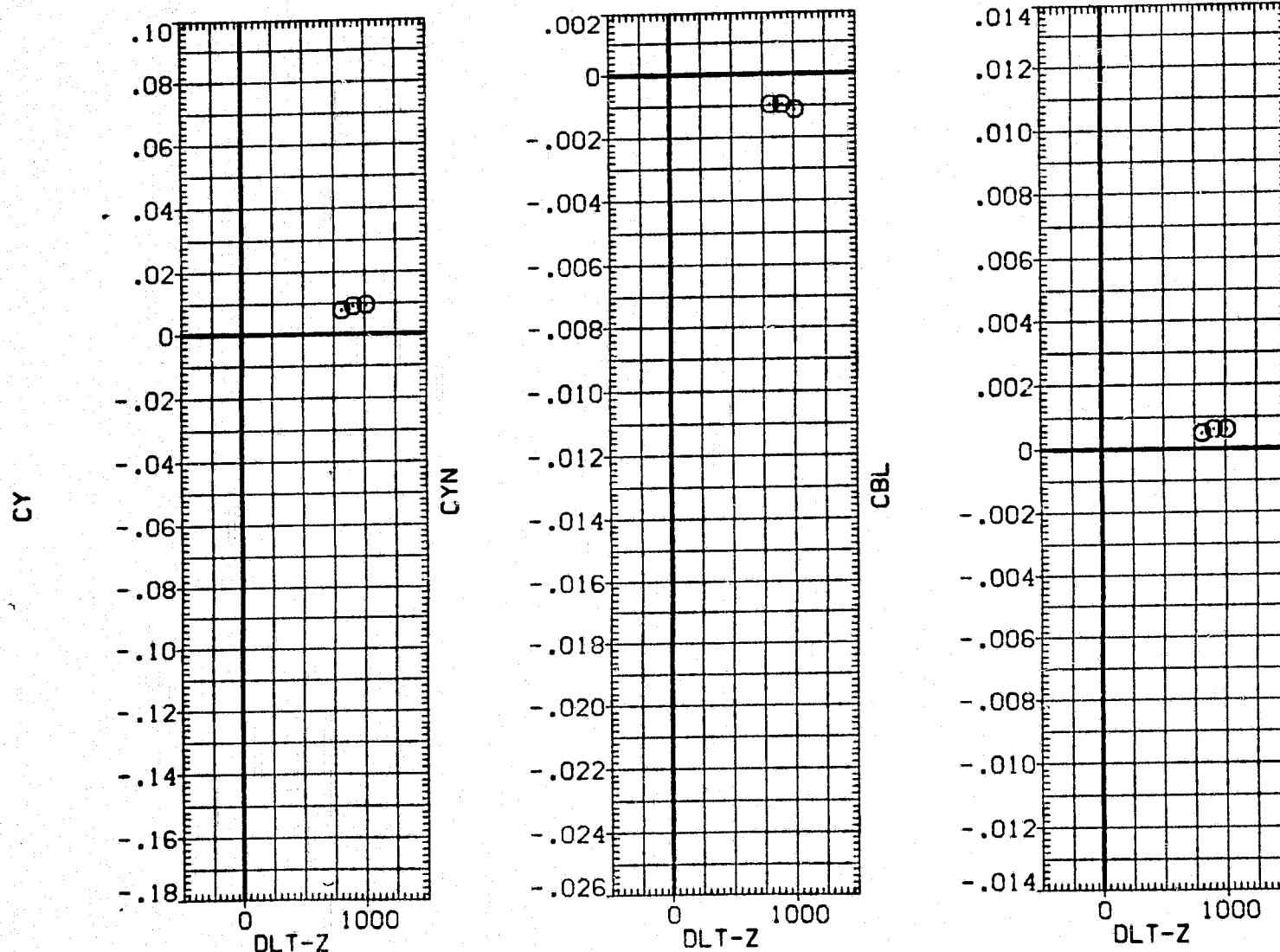


FIGURE 30 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, ELEVON= -40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR149)

SYMBOL	DLT-X	PARAMETRIC VALUES			
O	.574	DLT-Y	.000	ALPHA	.000
		BETA	.000	DLTALF	.000
		DLTBTA	.000	MACH	7.980
		AILRON	15.000	ELEVON	.000
		GRID	21.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

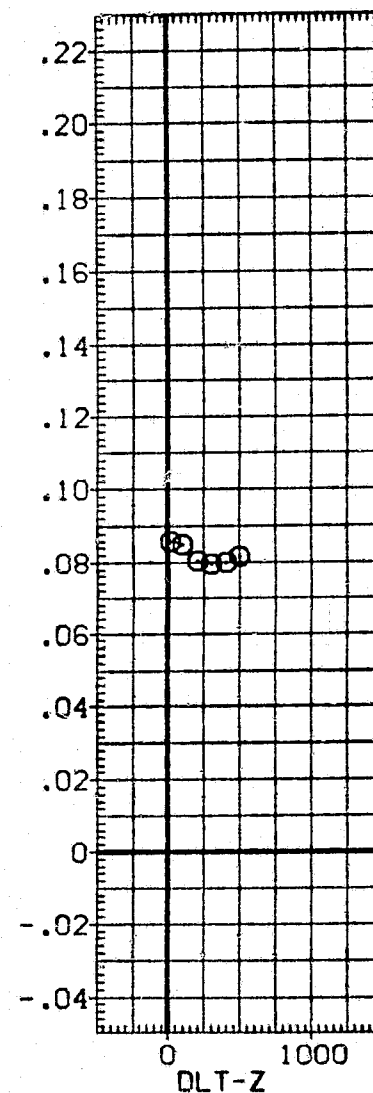
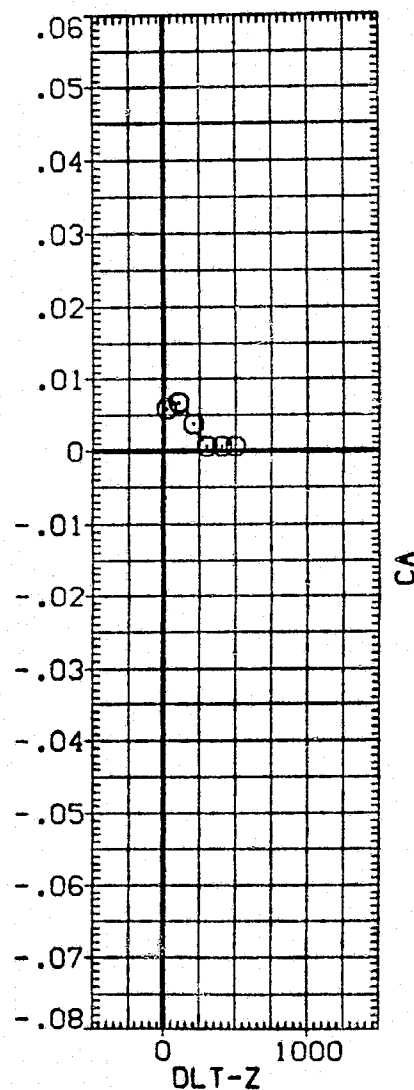
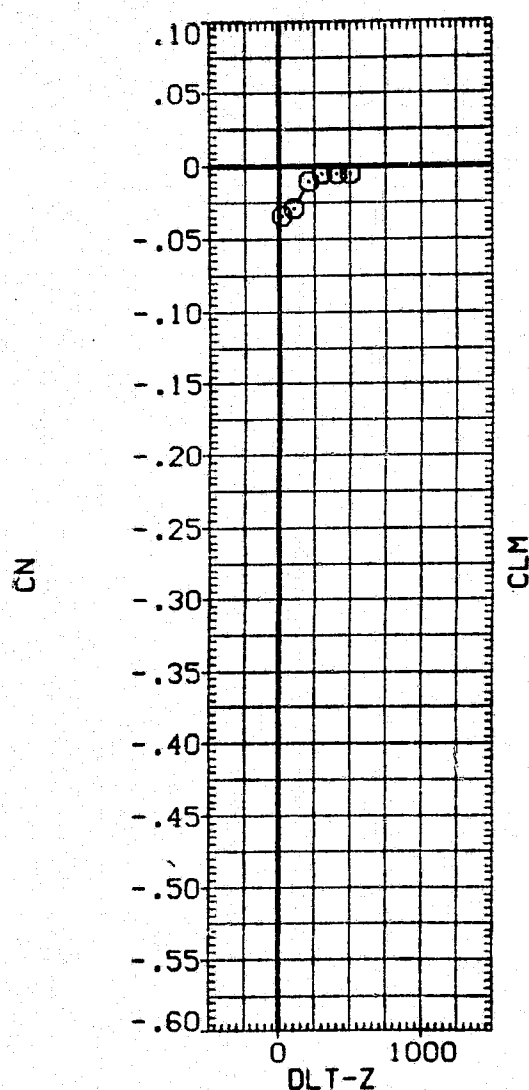
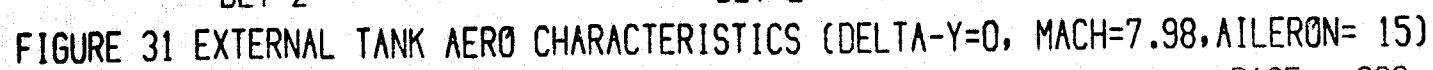


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,AILERON= 15)

519

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1250.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	



AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR150)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	ALPHA	DLTALF	MACH	ELEVON
○	.578	.000	.000	-10.000	7.980	.000
		BETA	.000			
		DLTBTA	.000			
		AILRON	15.000			
		GRID	21.000	PO	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

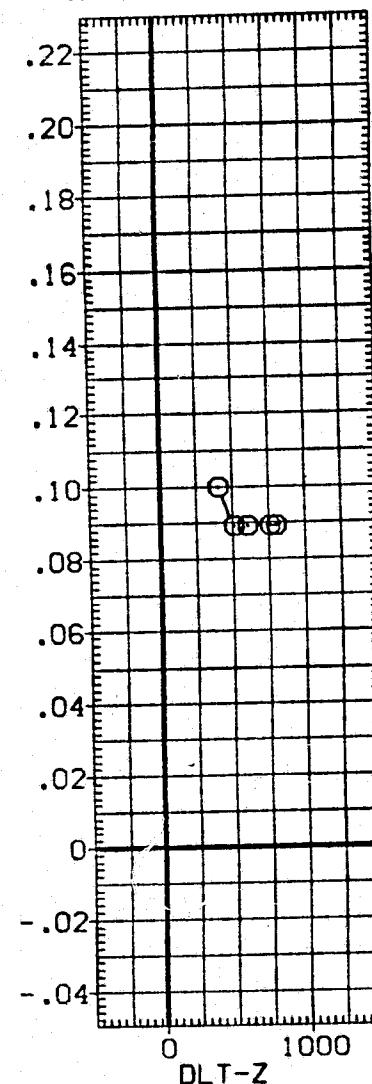
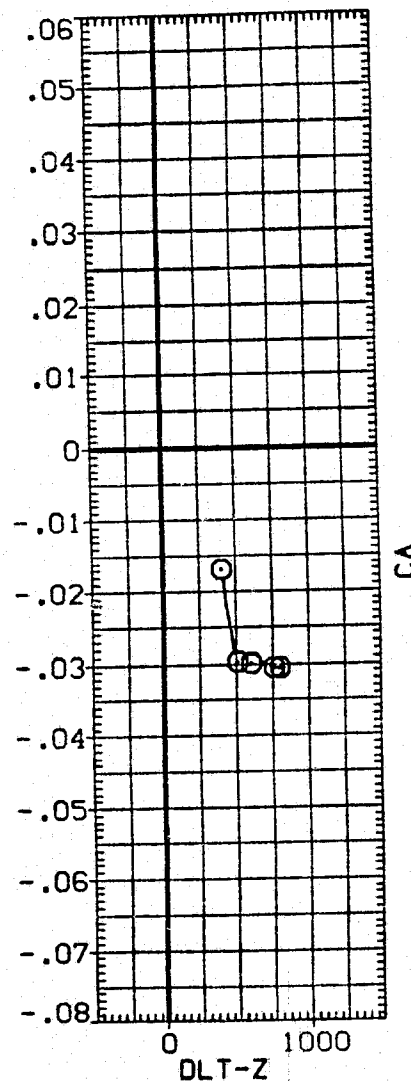
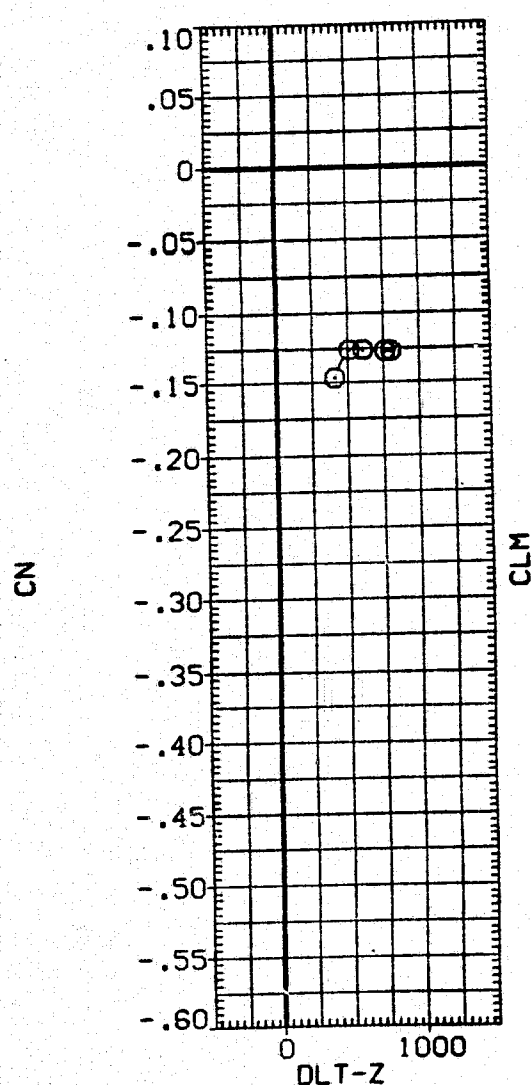


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR150)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.578	BETA	.000	DLTALF	-10.000
		DLTBTA	.000	MACH	7.980
		AILRON	15.000	ELEVON	.000
		GRID	21.000	PG	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

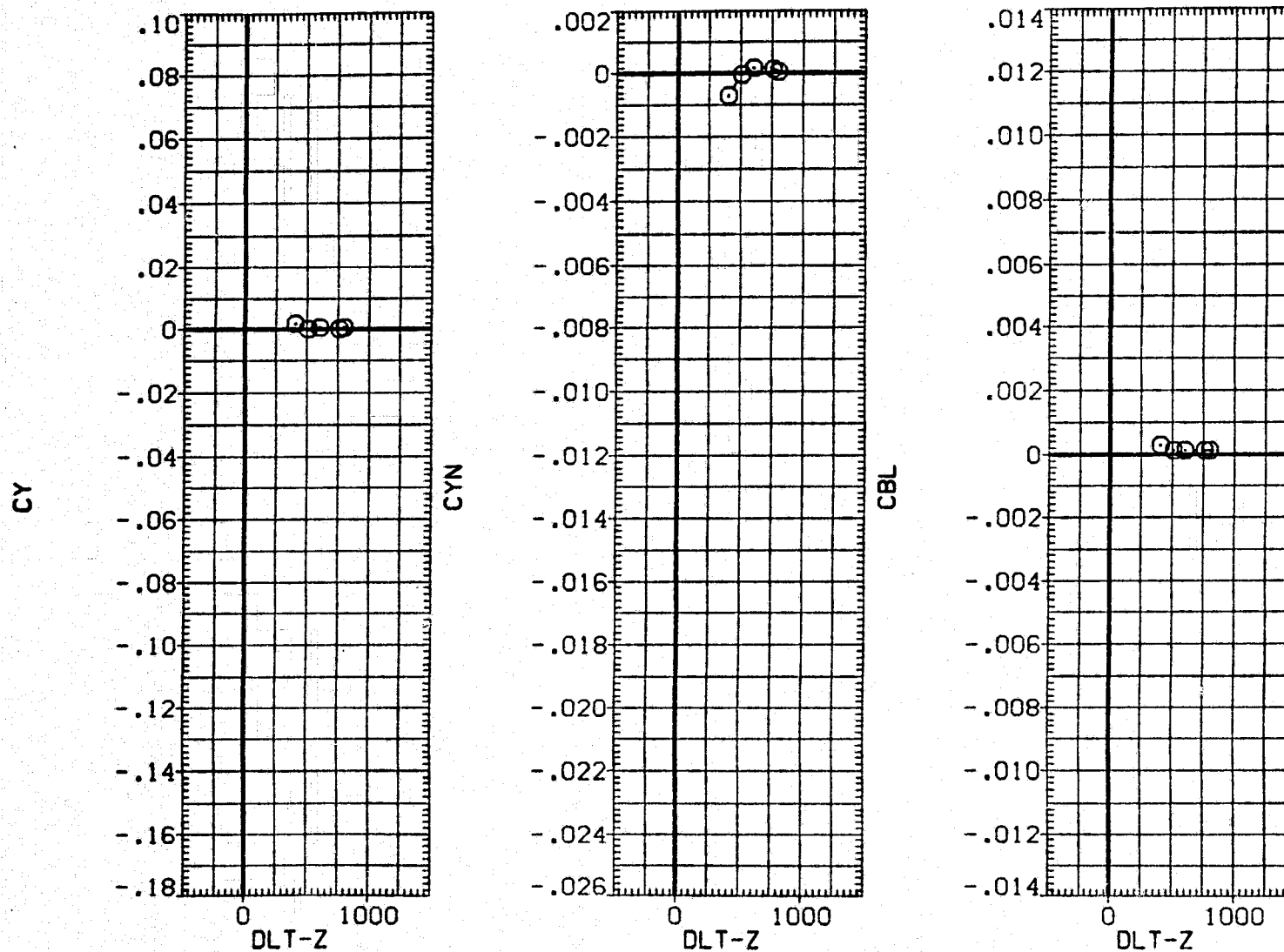


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,AILRON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR151)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.413	BETA	.000	.000
		DLTBT	.000	DLTALF -20.000
		AILRON	15.000	MACH 7.980
		GRID	21.000	ELEVON .000
				PC 300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

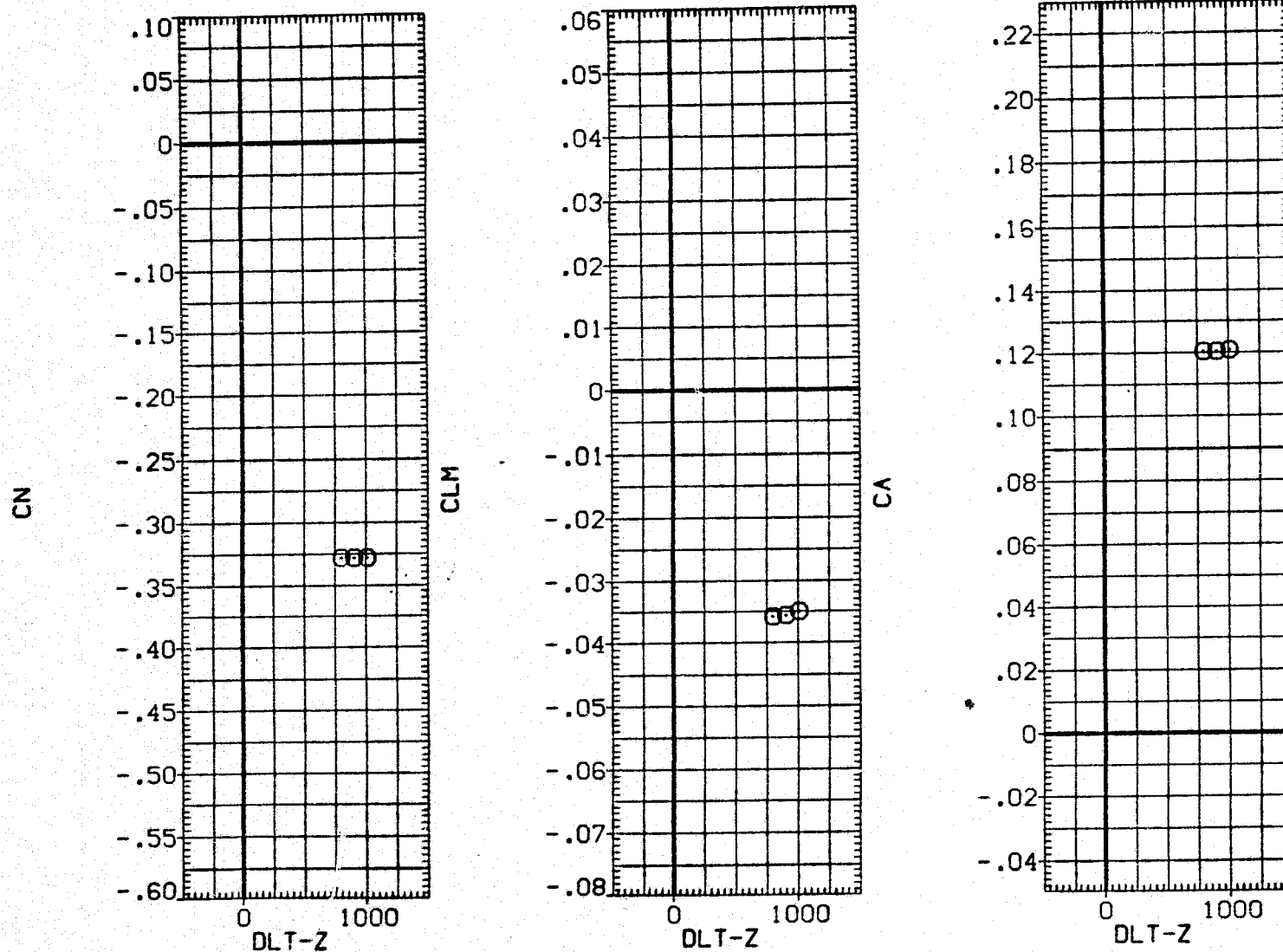


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,AILRON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR151)

SYMBOL
O

DLT-X
.413

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES

DLT-Y	.000	ALPHA	.000
BETA	.000	DLTALF	-20.000
DLTBTA	.000	MACH	7.980
AILRON	15.000	ELEVON	.000
GRID	21.000	P0	300.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

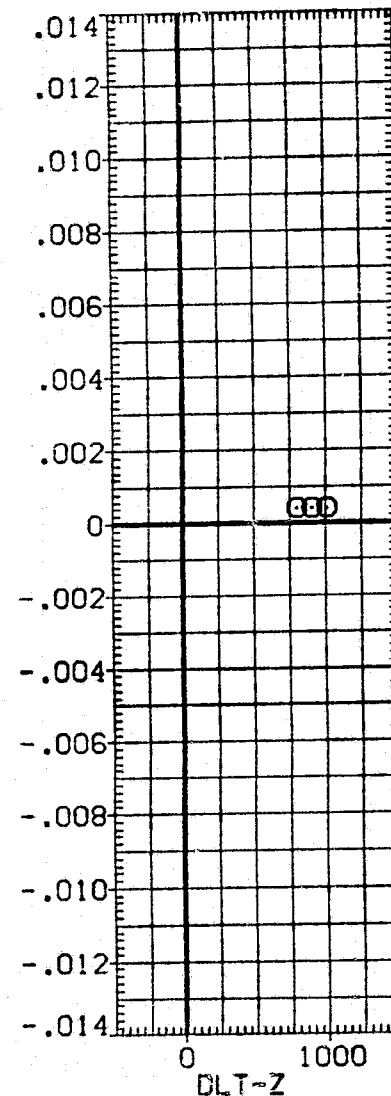
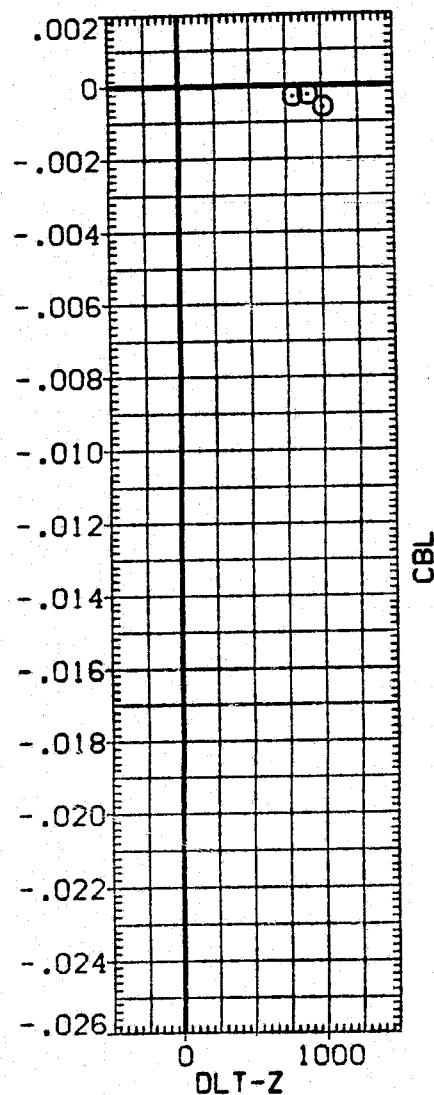
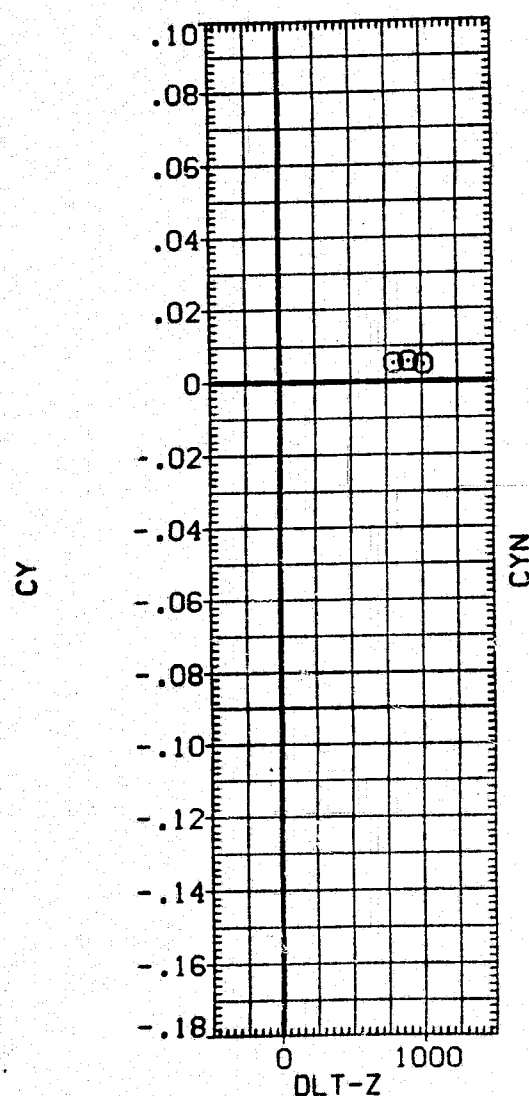


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR152)

SYMBOL	DLT-X	DLT-Y	BETA	DLTBTA	AILRON	GRID	PARAMETRIC VALUES	ALPHA	DLTALF	MACH	ELEVON	PG
○	.437	.000	.000	.000	15.000	20.000		-5.000	.000	7.990	.000	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

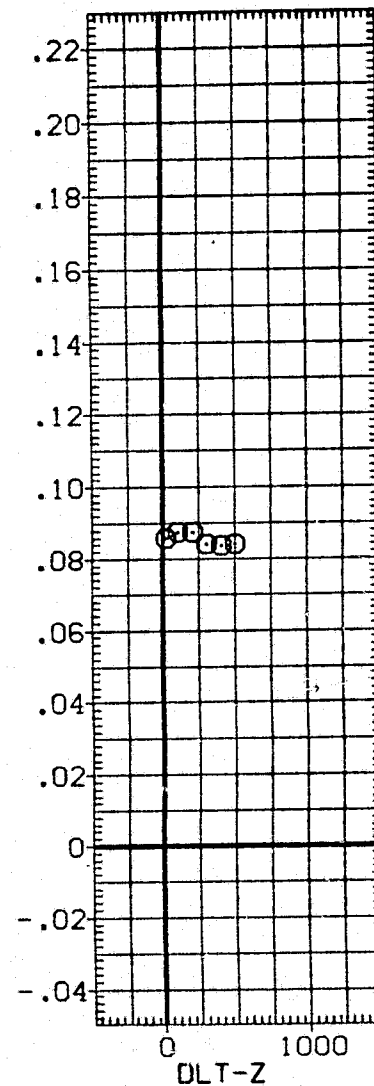
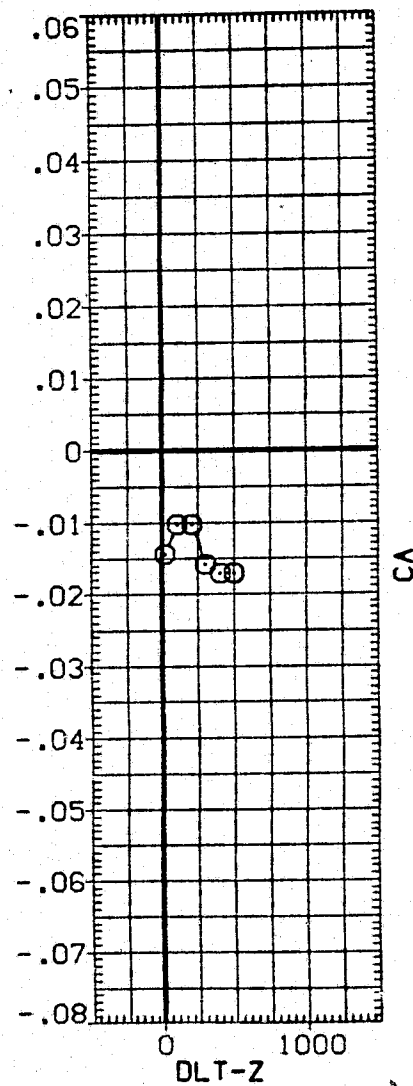
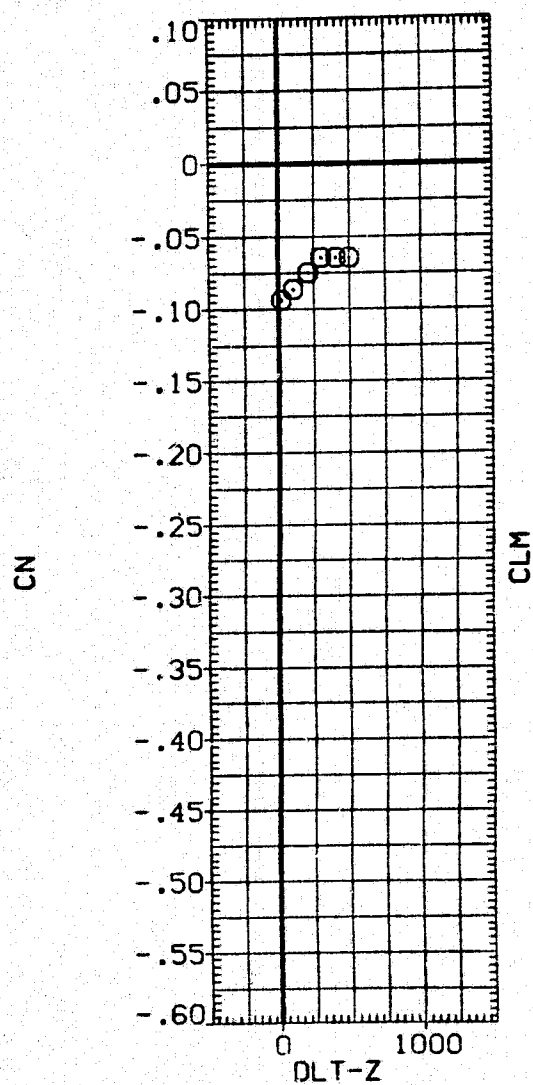


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,AILRON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR152)

SYMBOL		DLT-X		PARAMETRIC VALUES			
O		.437		DLT-Y	.000	ALPHA	-5.000
				BETA	.000	DLTALF	.000
				DLTBTA	.000	MACH	7.980
				AILRON	15.000	ELEVON	.000
				GRID	20.000	PO	300.000

REFERENCE INFORMATION		
SREF	2890.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

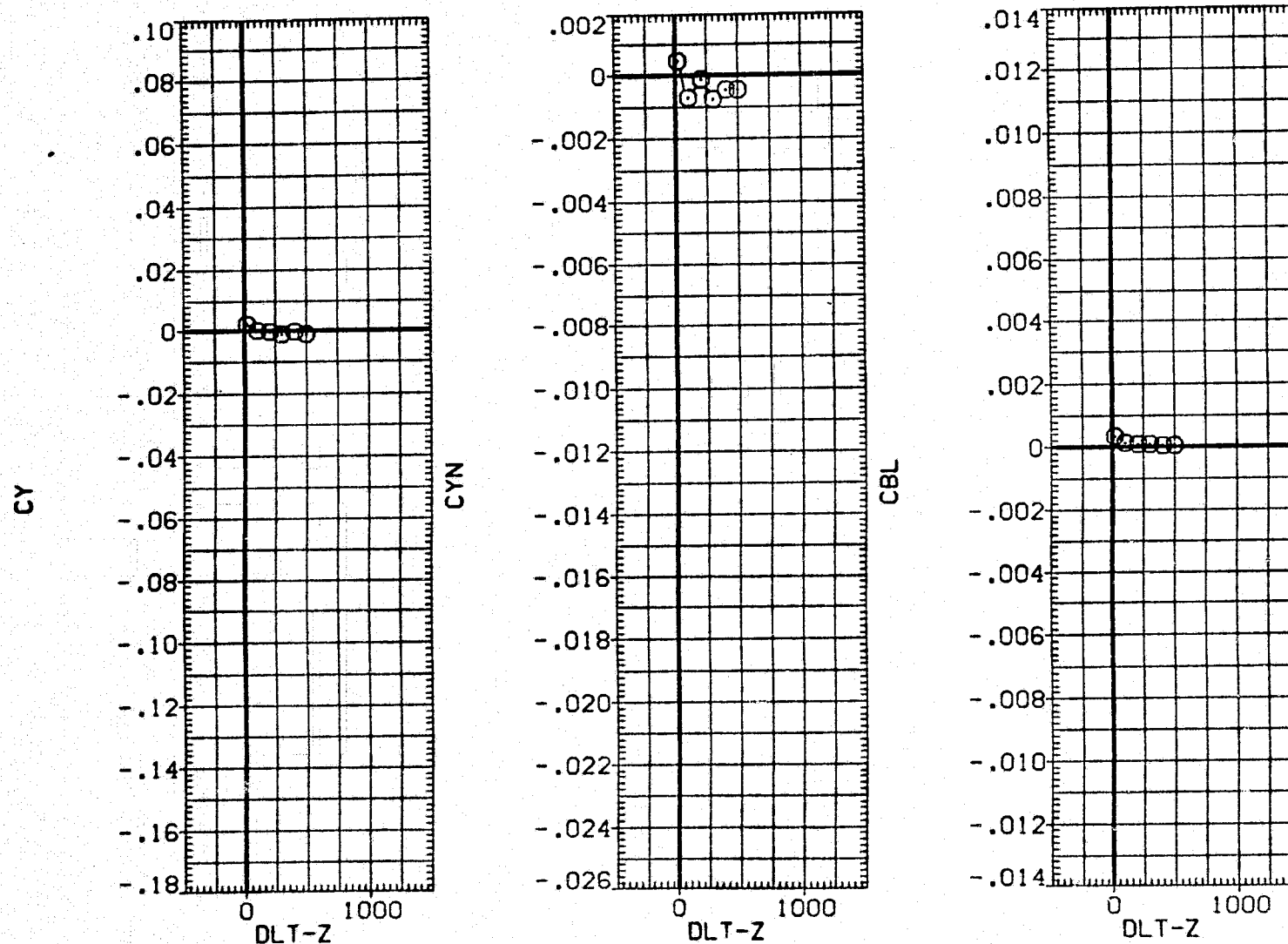


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR153)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.398	BETA	.000	-5.000
		DLTBTA	.000	DLTALF
		AILERON	.000	MACH
		GRID	15.000	ELEVON
			20.000	PO
				300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

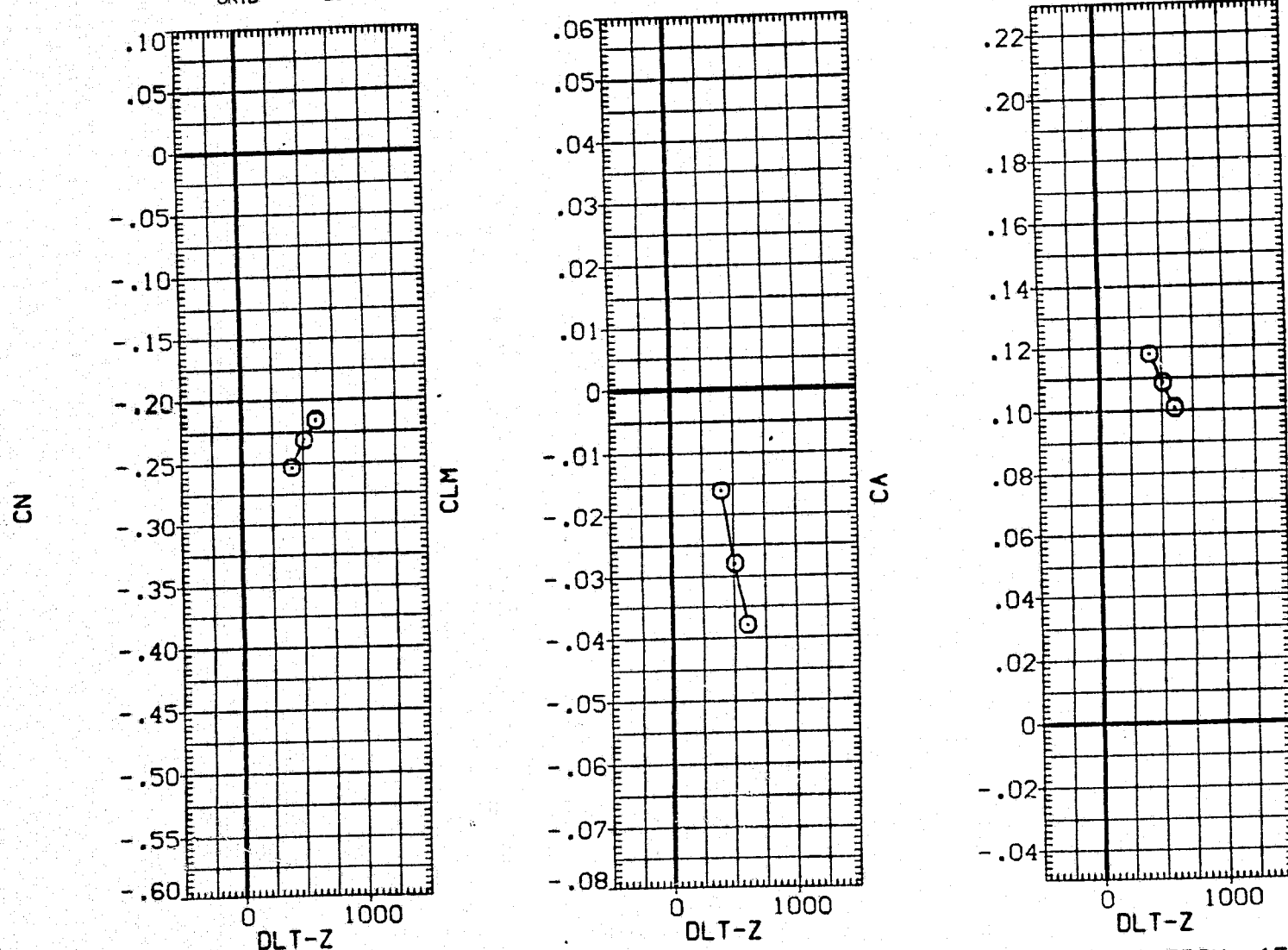


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR153)

SYMBOL
O

DLT-X
.398

PARAMETRIC VALUES

DLT-Y	.000	ALPHA	-5.000
BETA	.000	DLTALF	-10.000
DLTBTA	.000	MACH	7.980
AILRON	15.000	ELEVON	.000
GRID	20.000	PO	300.000

REFERENCE INFORMATION

SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

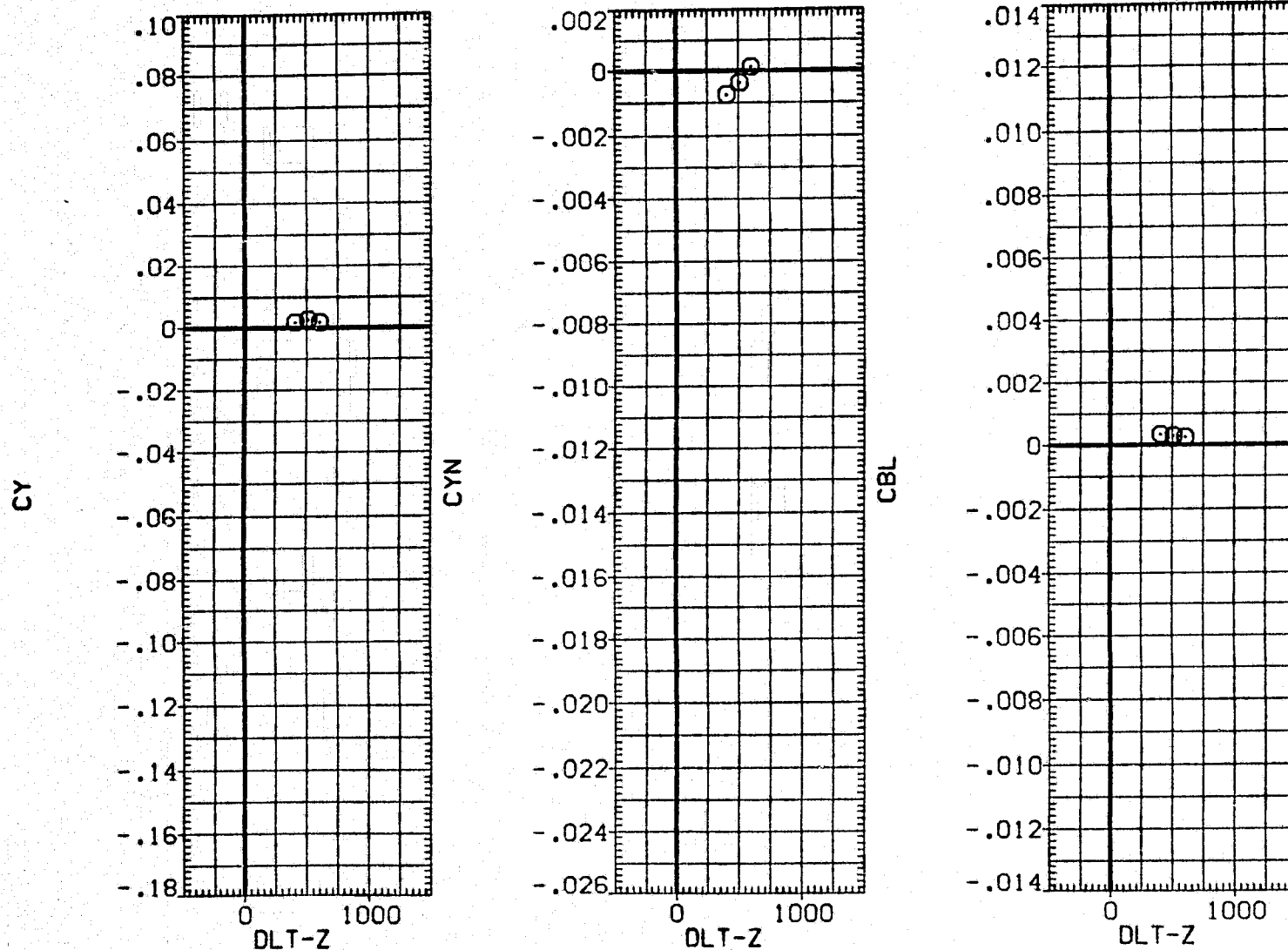


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,AILRON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR154)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	.000	ALPHA	-5.000
O	.371	BETA	.000	DLTALF	-20.000
		DLTBT	.000	MACH	7.980
		AILRON	15.000	ELEVON	.000
		GRID	20.000	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

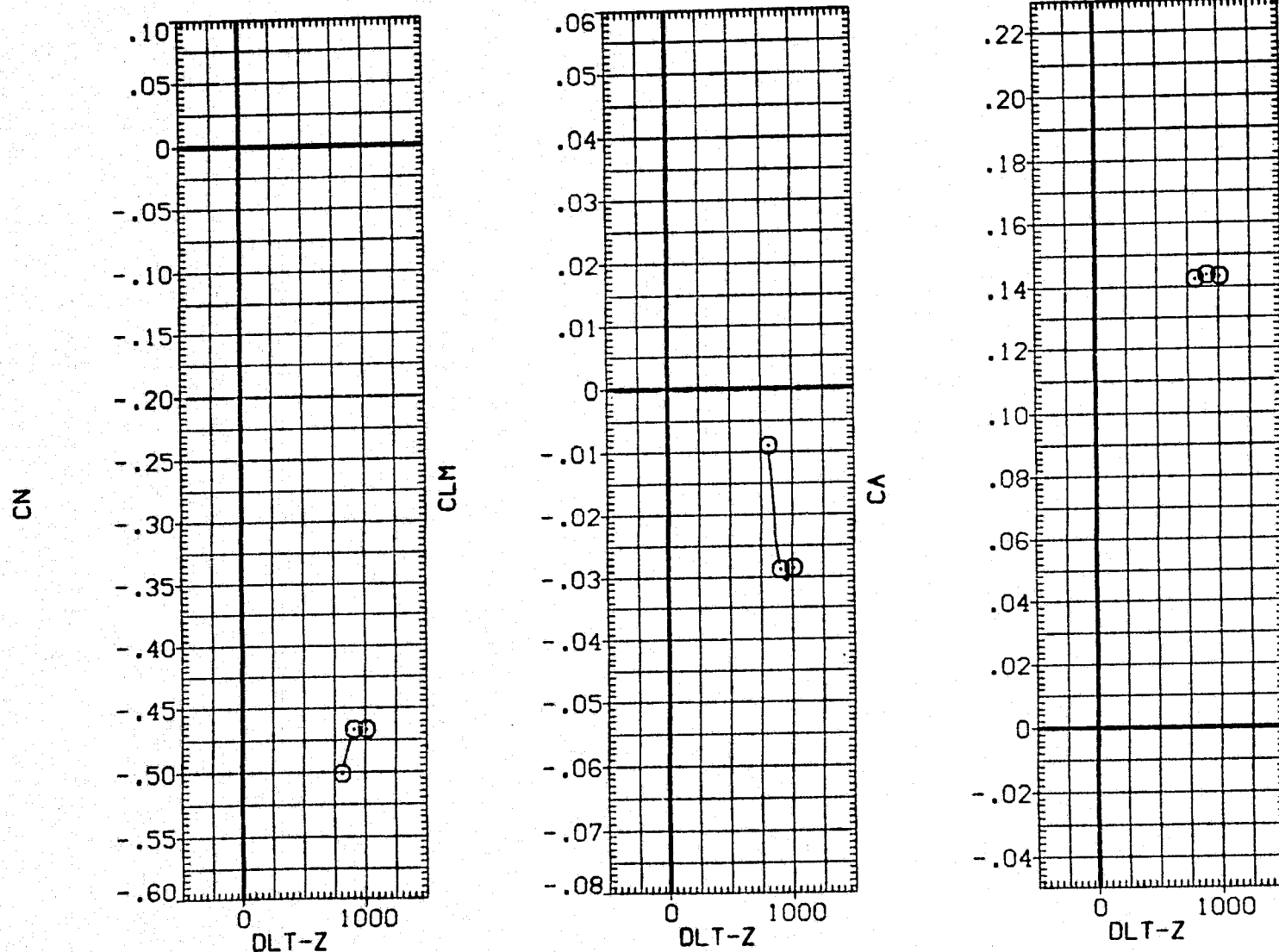


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR154)

SYMBOL
O

DLT-X
.371

PARAMETRIC VALUES

DLT-Y	.000	ALPHA	-5.000
BETA	.000	DLTALF	-20.000
DLTBTA	.000	MACH	7.980
AILRON	15.000	ELEVON	.000
GRID	20.000	PC	300.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

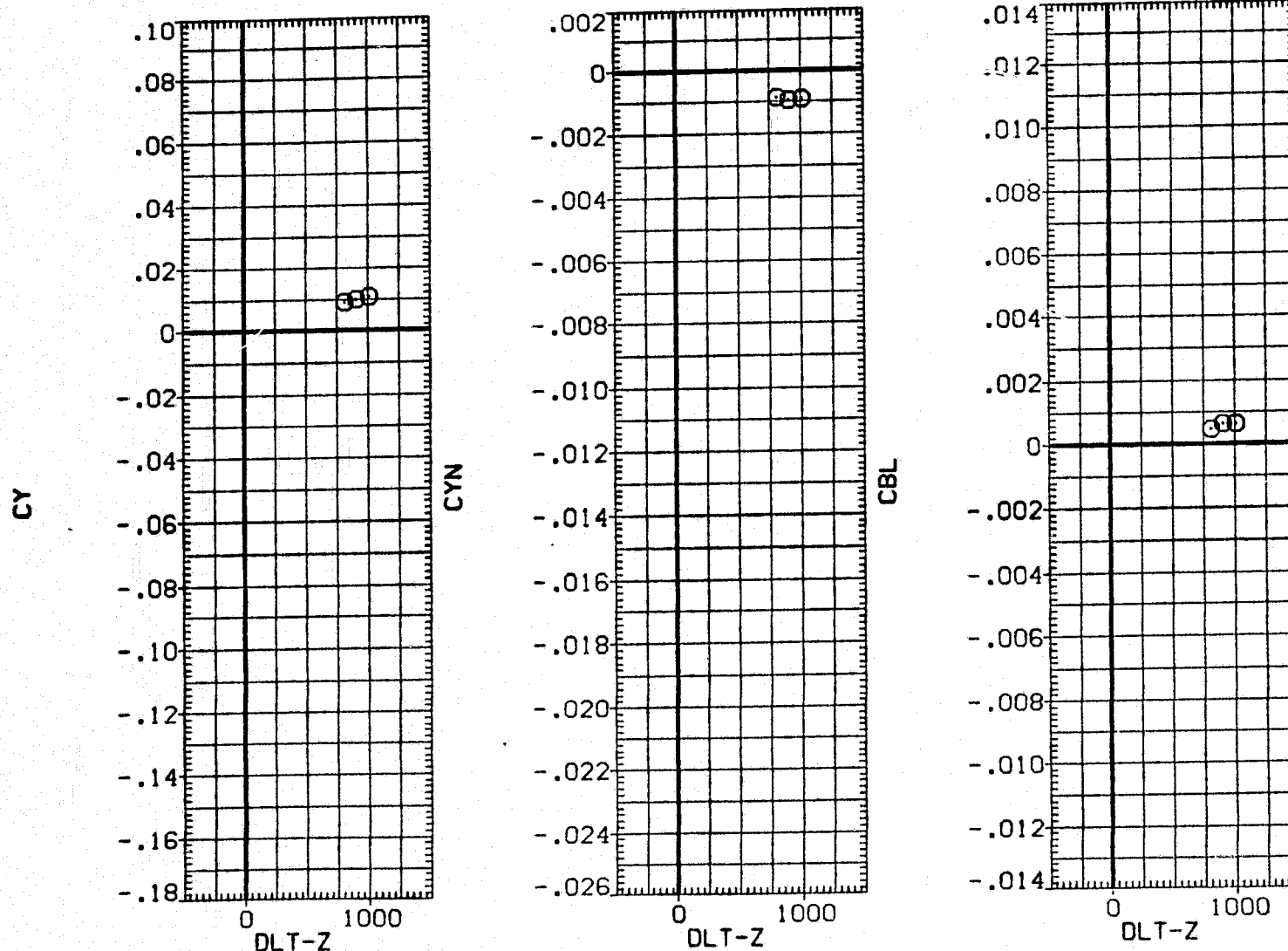


FIGURE 31 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=0, MACH=7.98,AILRON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR201)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.462	BETA	60.000	ALPHA .000
□	200.450	DLTBT	.000	DLTALF .000
◇	400.460	AILRON	.000	MACH 5.930
		GRID	1.000	ELEVON .000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

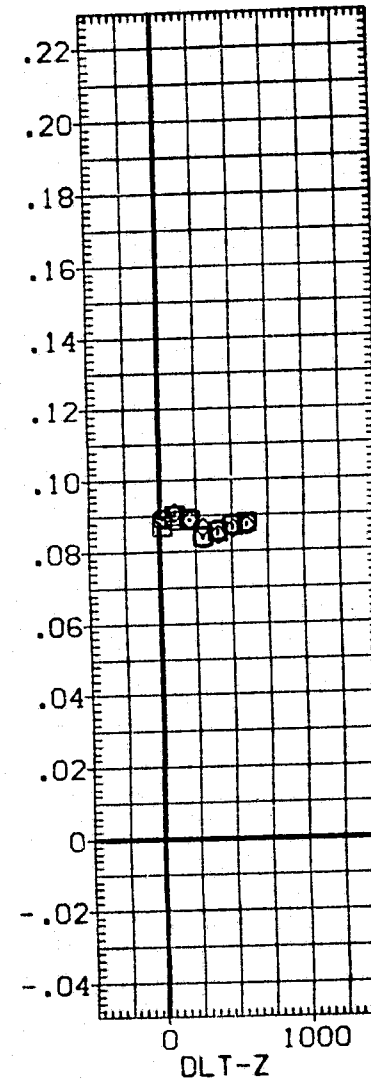
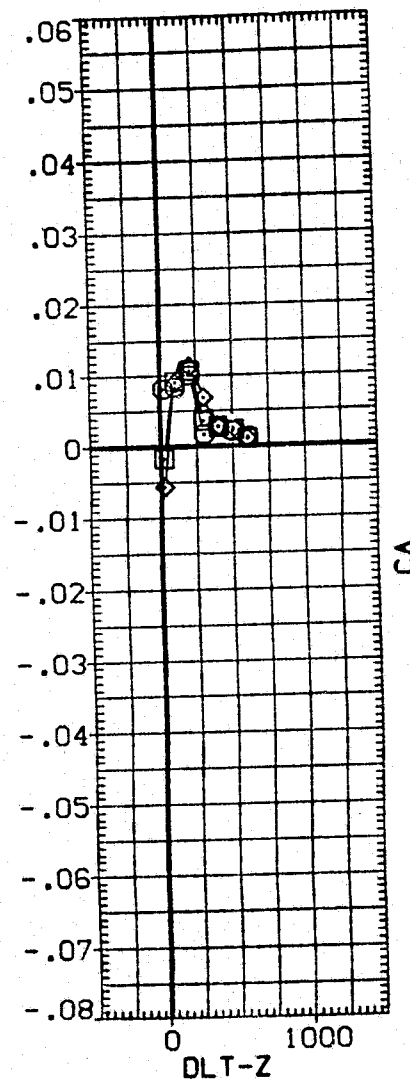
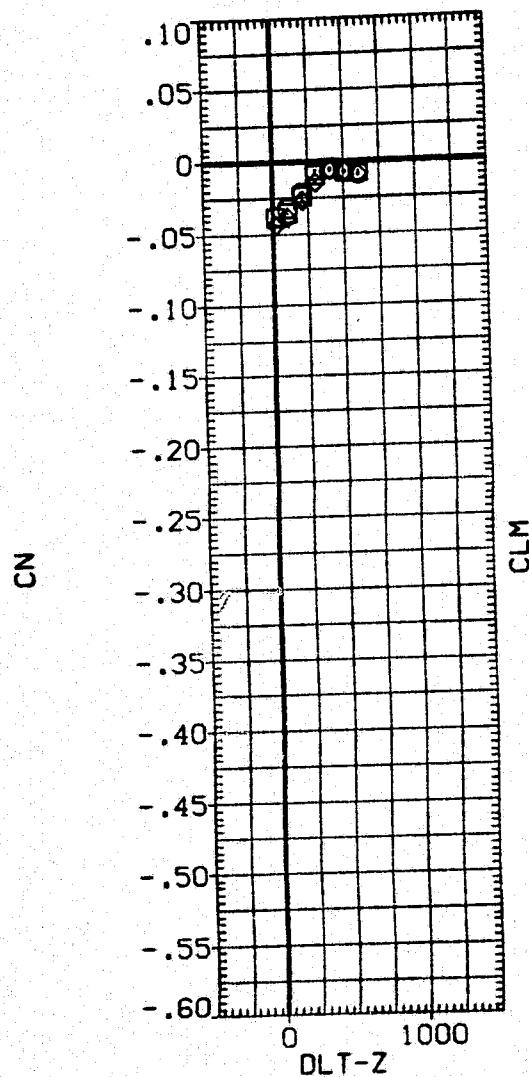


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR201)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.462	60.000	BETA	.000	.000
□	200.450	.000	DLTALF	.000	.000
◇	400.460	.000	MACH	5.930	.000
		.000	ELEVON	.000	
		GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

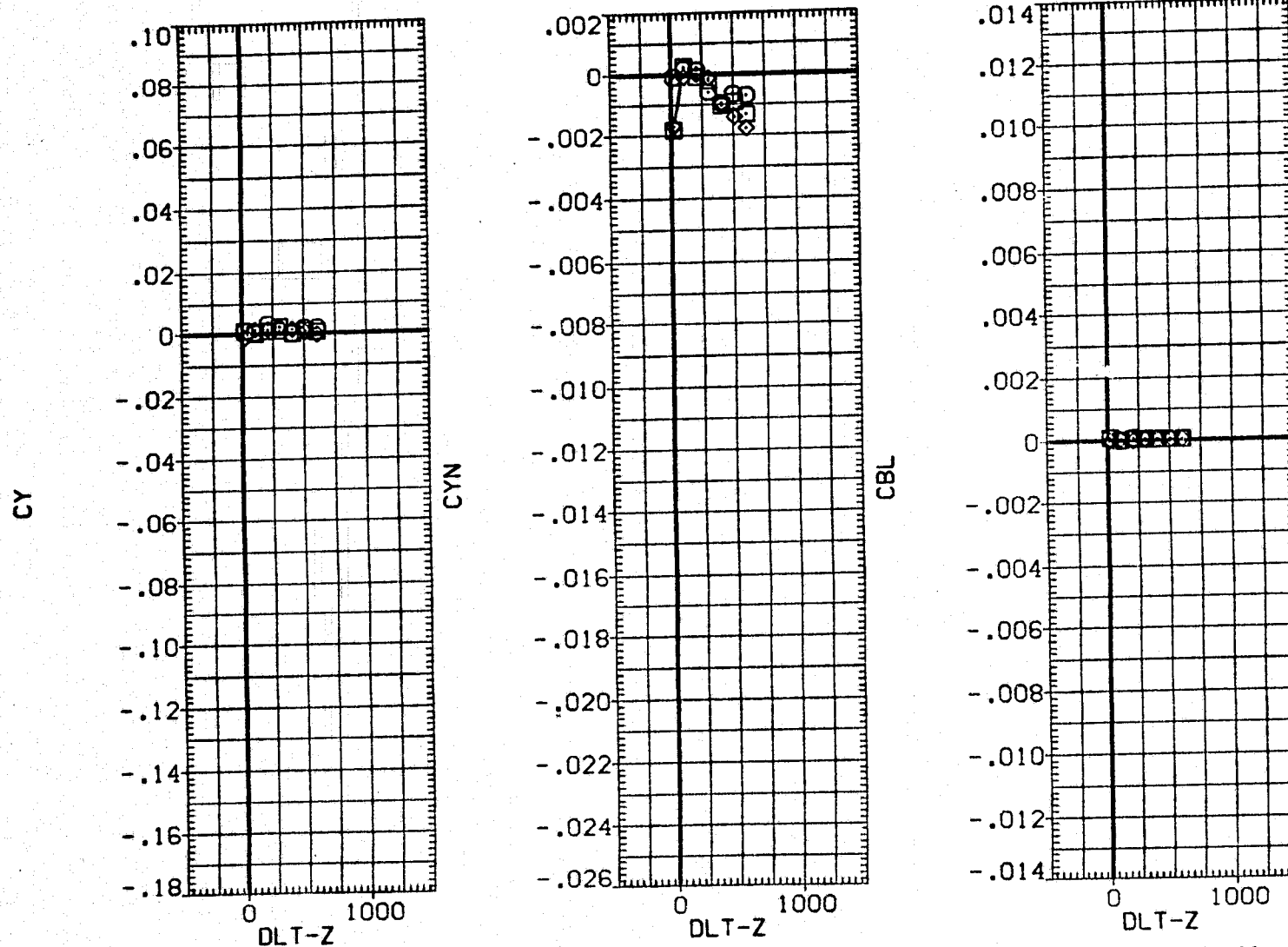


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR202)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-X	DLT-Y	60.000	ALPHA	
○	.460	BETA	.000	DLTALF	-10.000
□	200.470	DLTBTA	.000	MACH	5.930
◇	400.530	AILRON	.000	ELEVON	.000
		GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

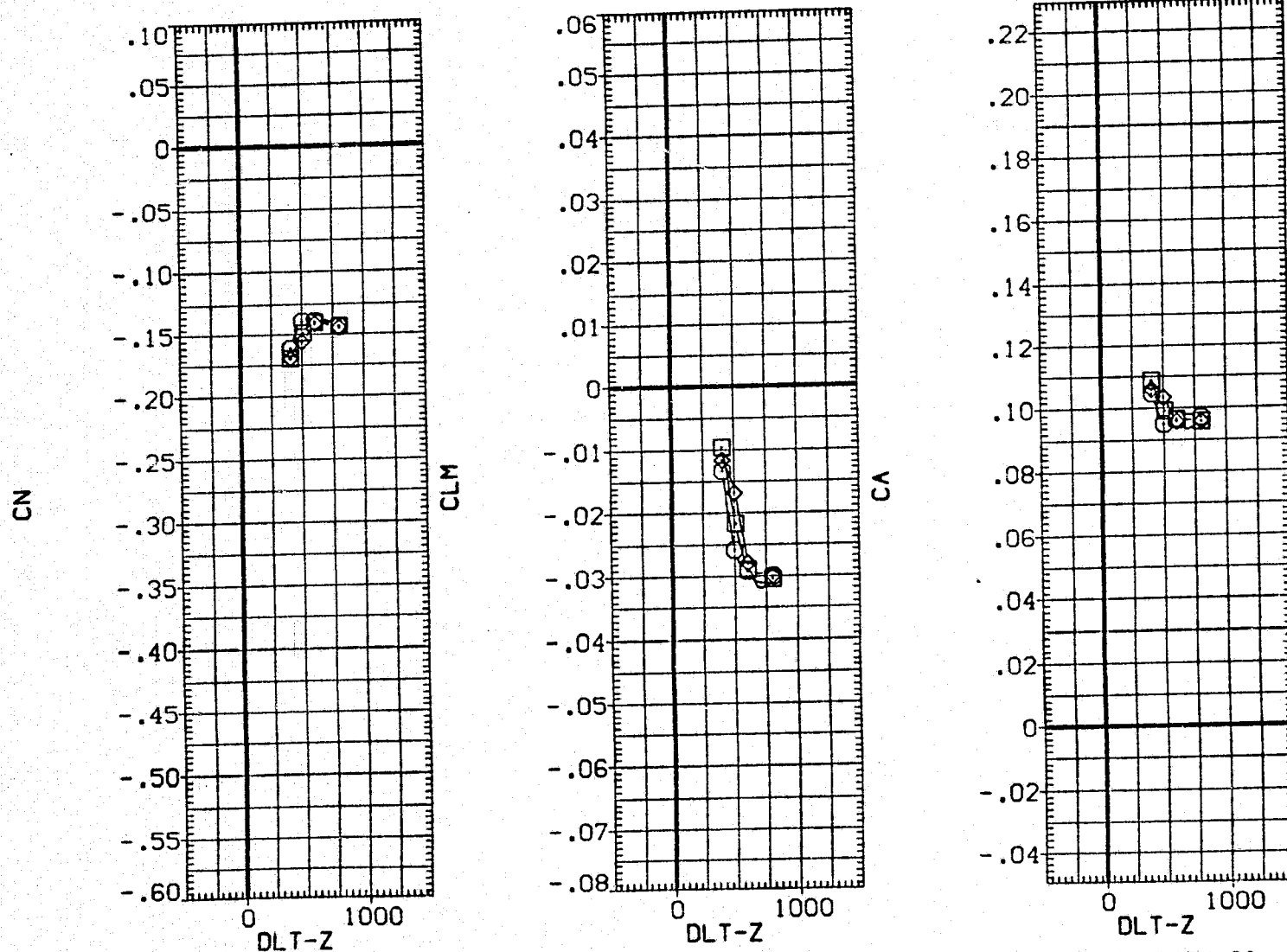


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR202)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
	.460	60.000	ALPHA	.000
○	200.470	BETA	DLTALF	-10.000
□	400.530	DLTBTA	MACH	5.930
◇		AILRON	ELEVON	.000
		GRID		1.000

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

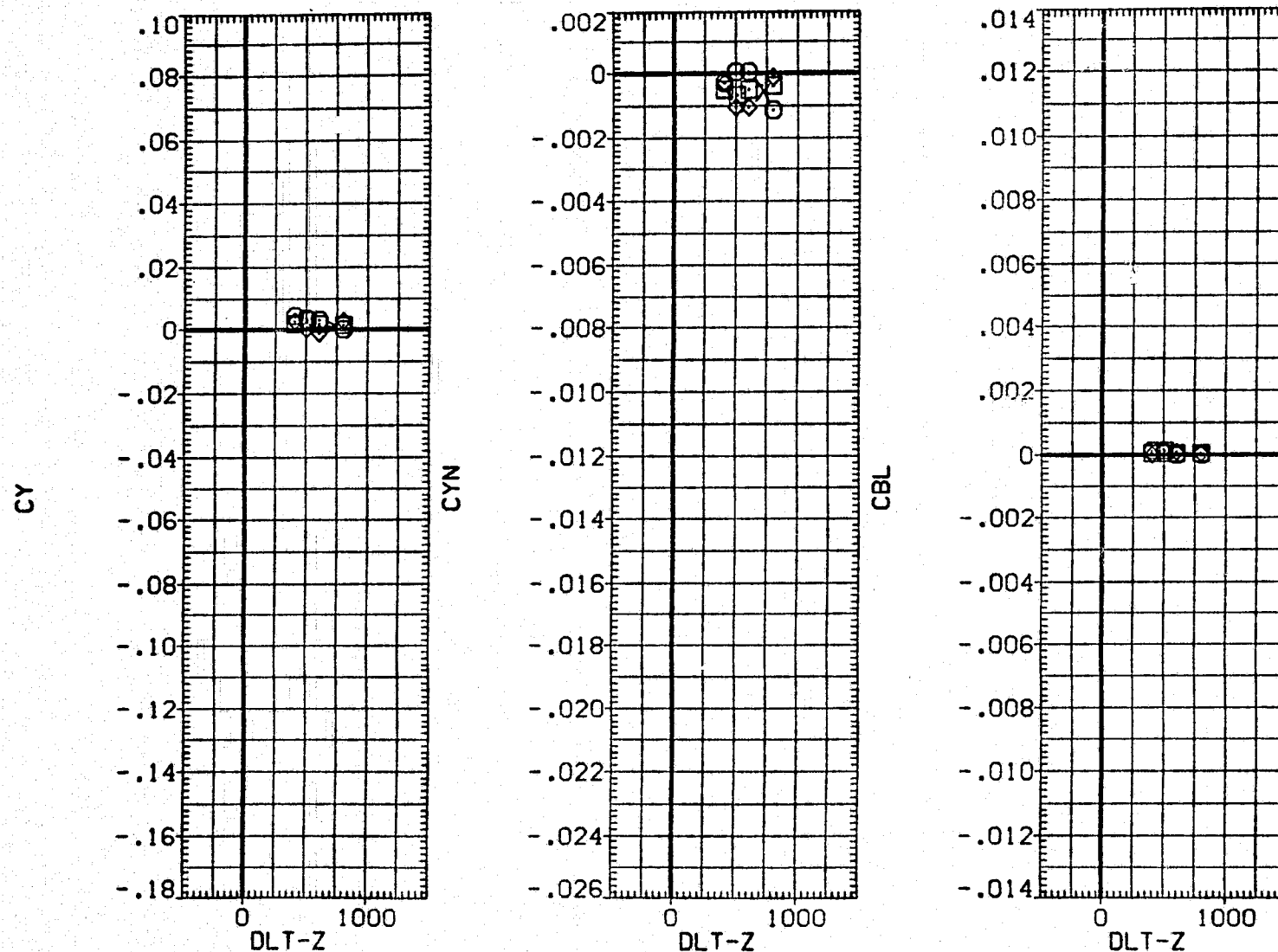


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR203)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.395	60.000	ALPHA	.000
□	200.490	.000	DLTALF	-20.000
◇	400.490	.000	MACH	5.930
		.000	ELEVON	.000
		1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

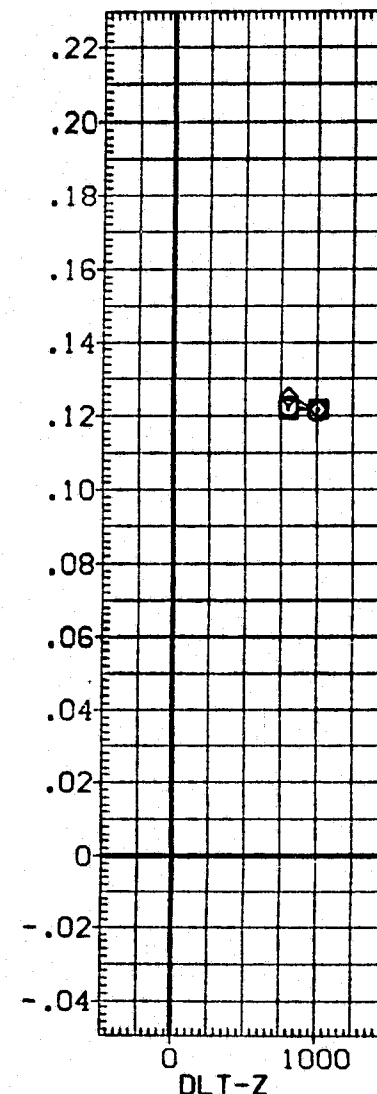
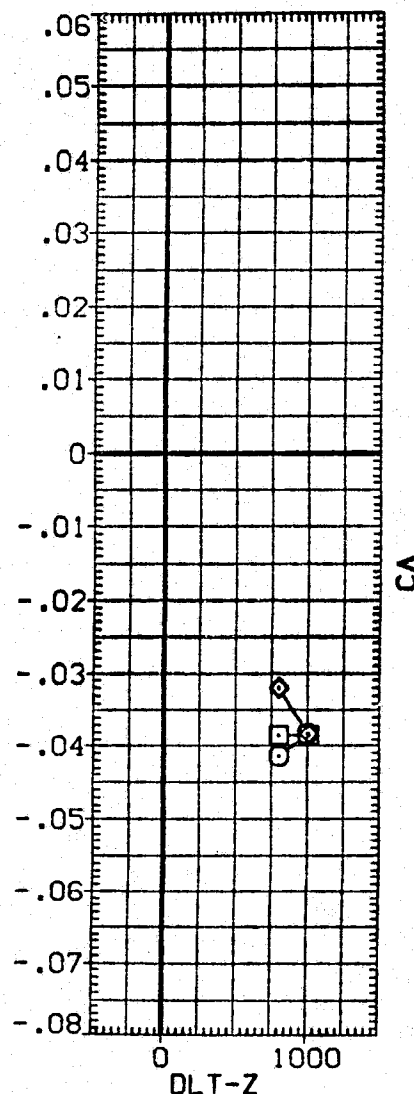
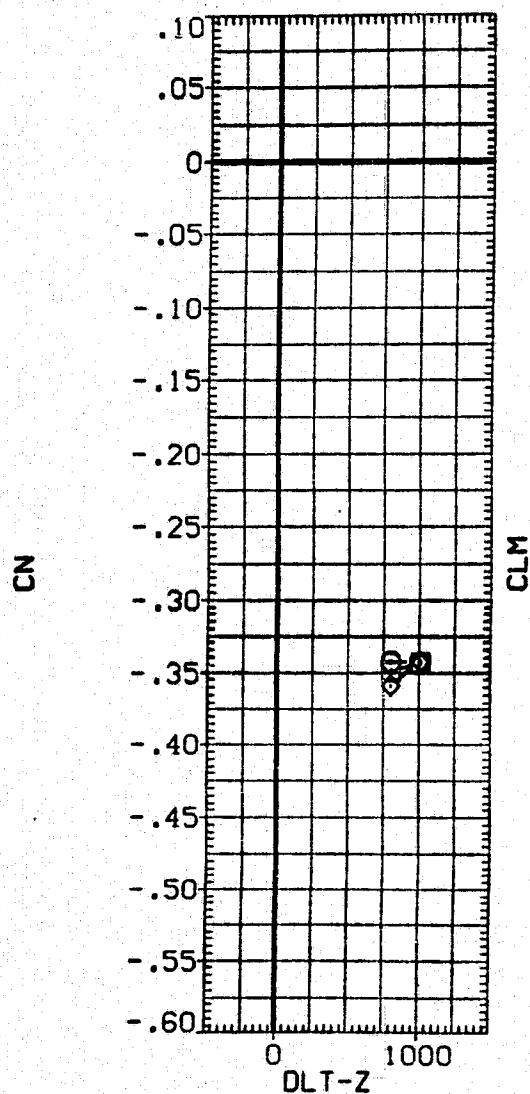


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR203)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.395	60.000	.000	-20.000
□	200.490	.000	.000	5.930
◇	400.490	.000	.000	.000
		ATLRON	ELEVON	
		GRID	1.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

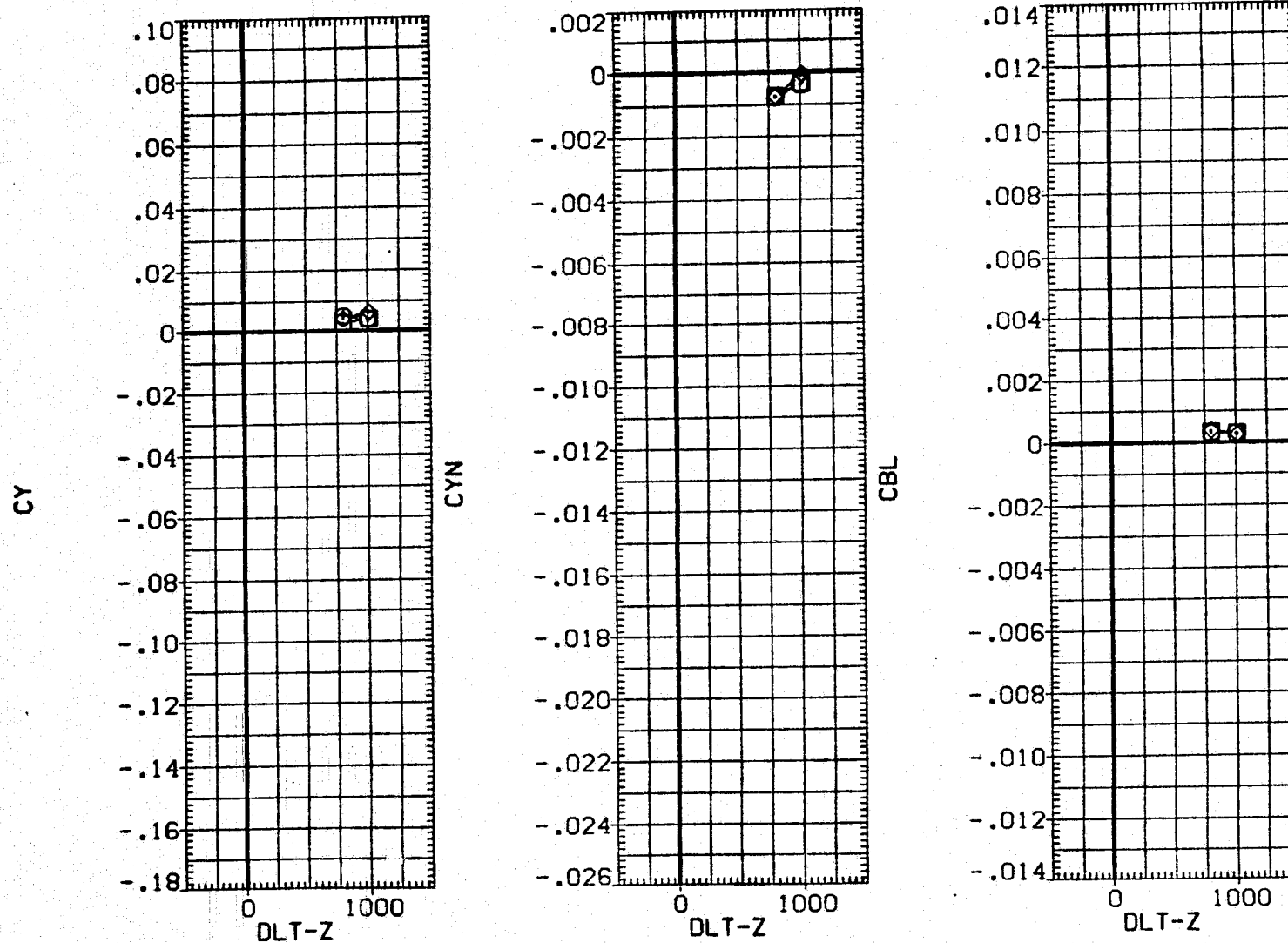


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR205)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.431	BETA	60.000	.000	
□	200.530	DLTBT	.000	DLTALF	-20.000
◇	400.500	AILRON	.000	MACH	5.930
		GRID	26.000	ELEVON	.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

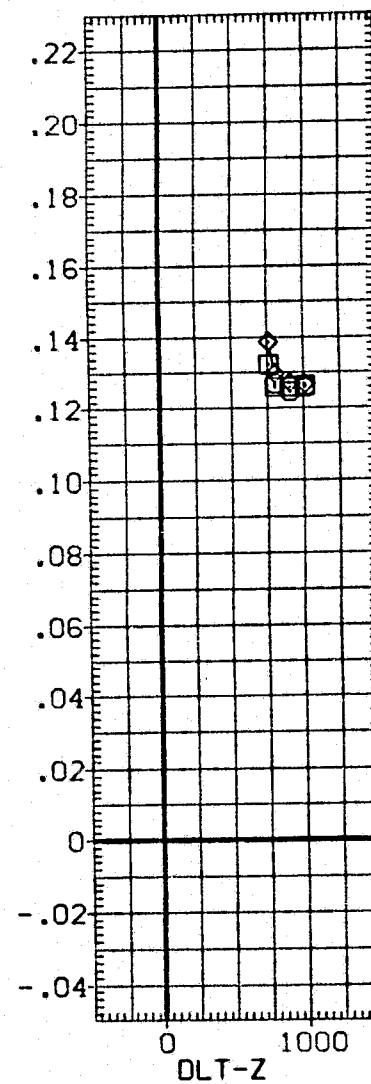
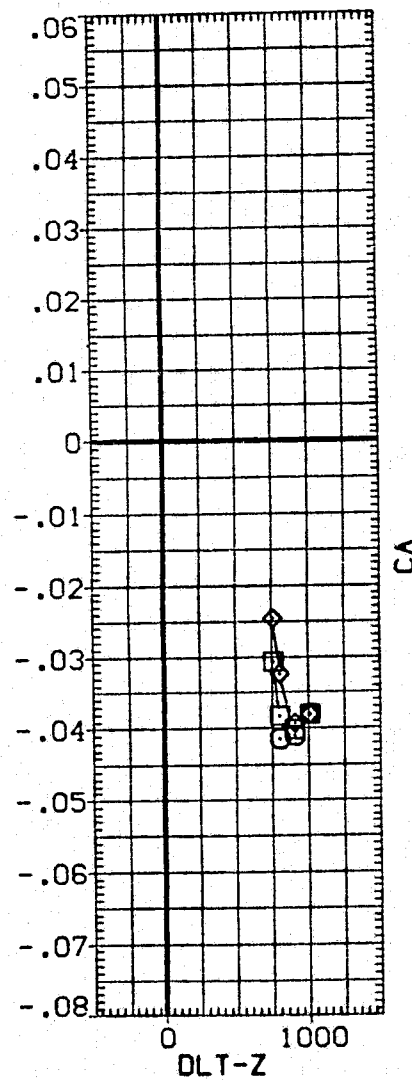
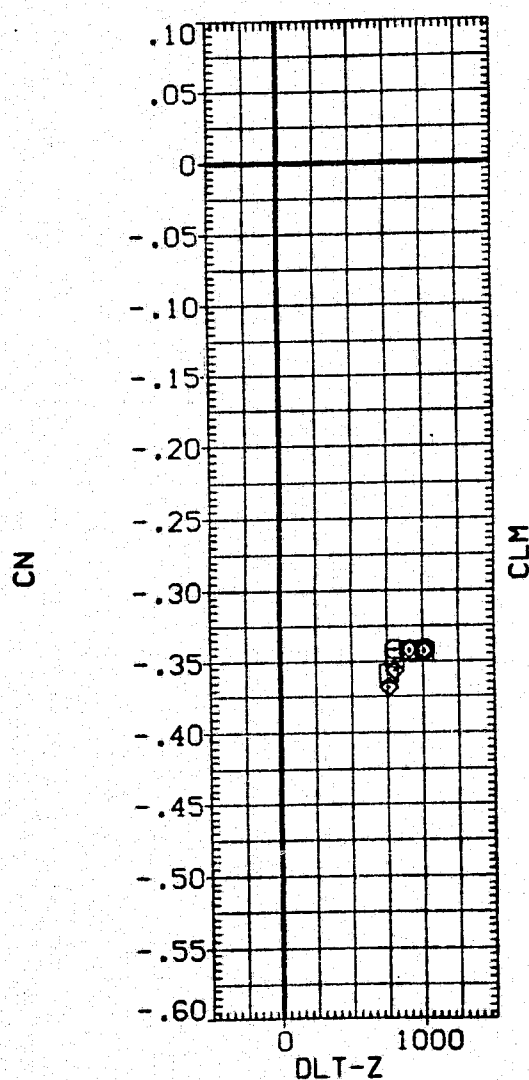


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR205)

SYMBOL	DLT-X		DLT-Y	PARAMETRIC VALUES	
○	.431		60.000	ALPHA	.000
□	200.530		.000	DLTALF	-20.000
◇	400.500		.000	MACH	5.930
			.000	ELEVON	.000
			26.000		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

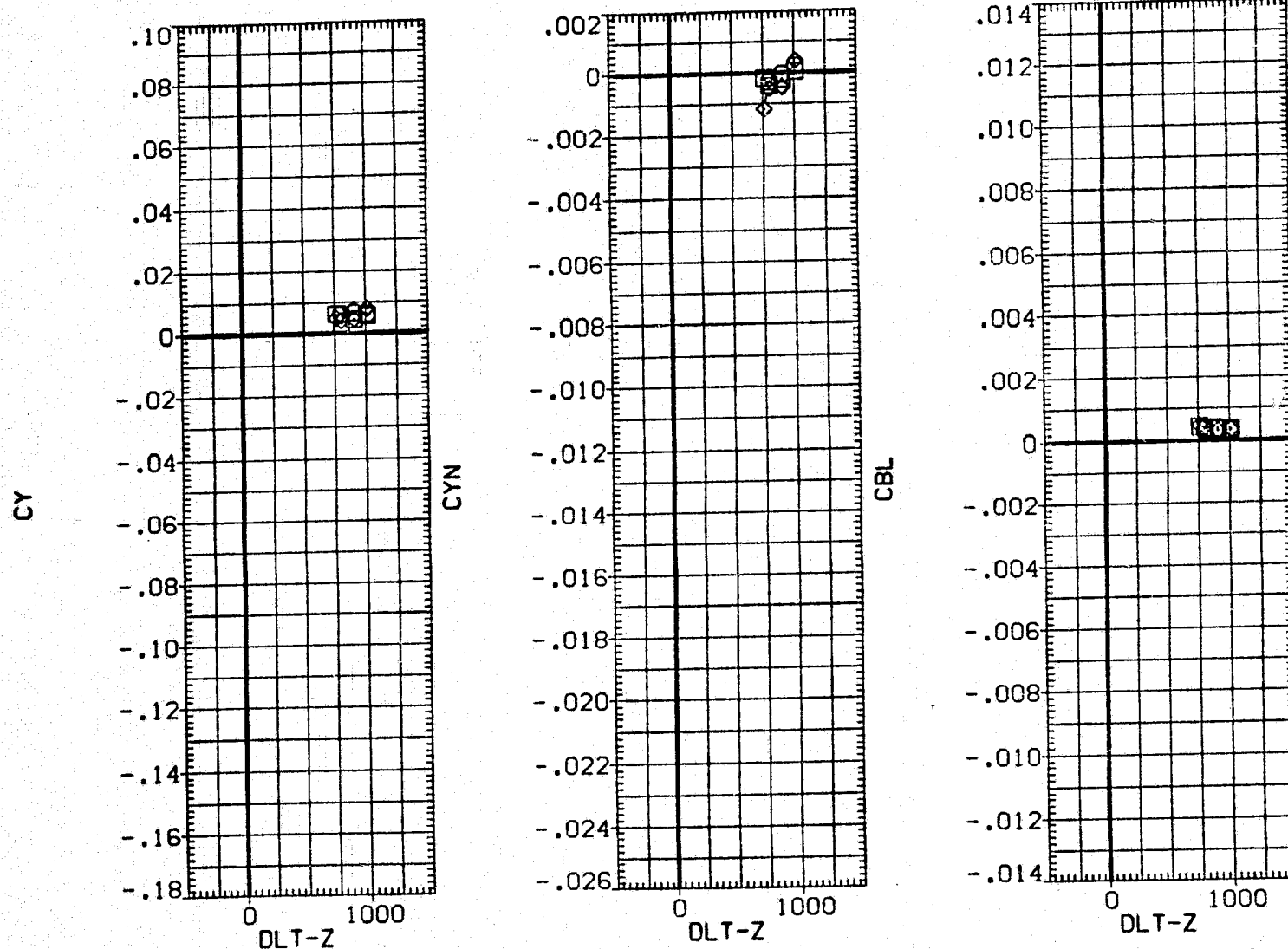


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR206)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-X	DLT-Y	60.000	ALPHA	.000
○	.533	BETA	.000	DLTALF	.000
□	200.560	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

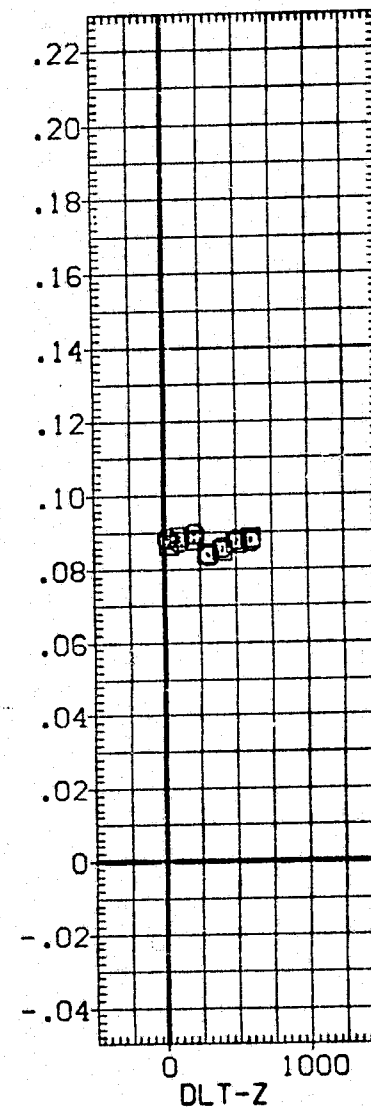
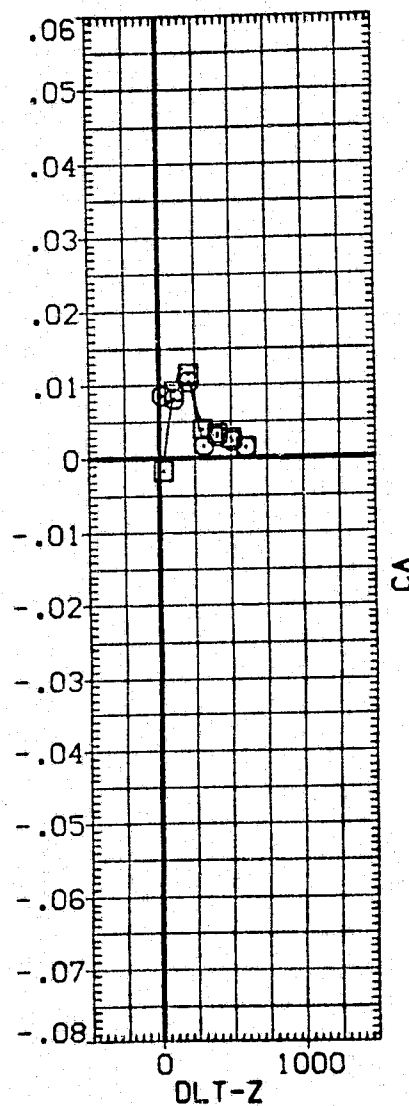
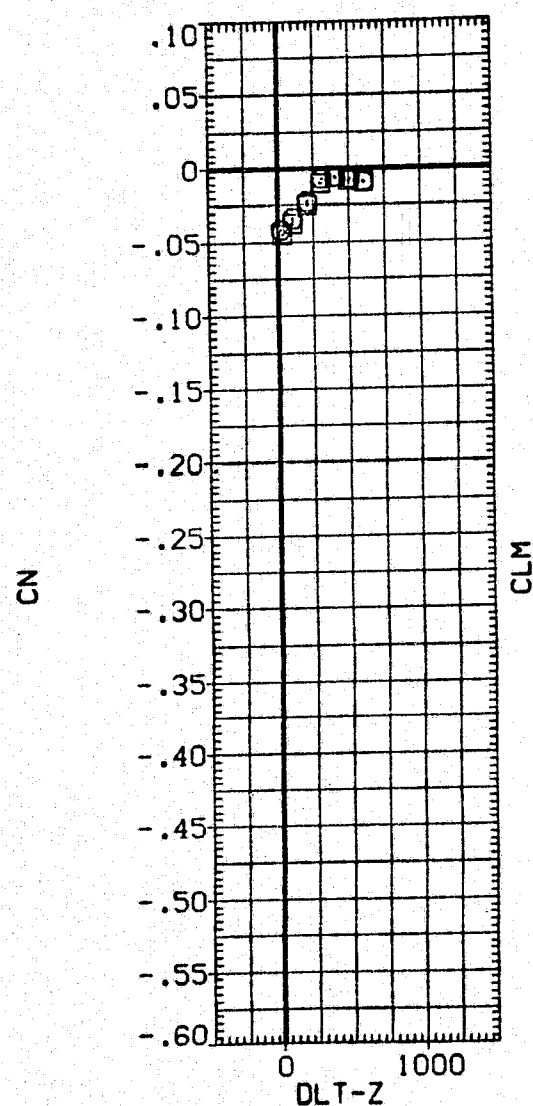


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR206)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.533	60.000	ALPHA	.000
□	200.560	.000	DLTALF	.000
		3.000	MACH	5.930
		.000	ELEVON	.000
		1.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

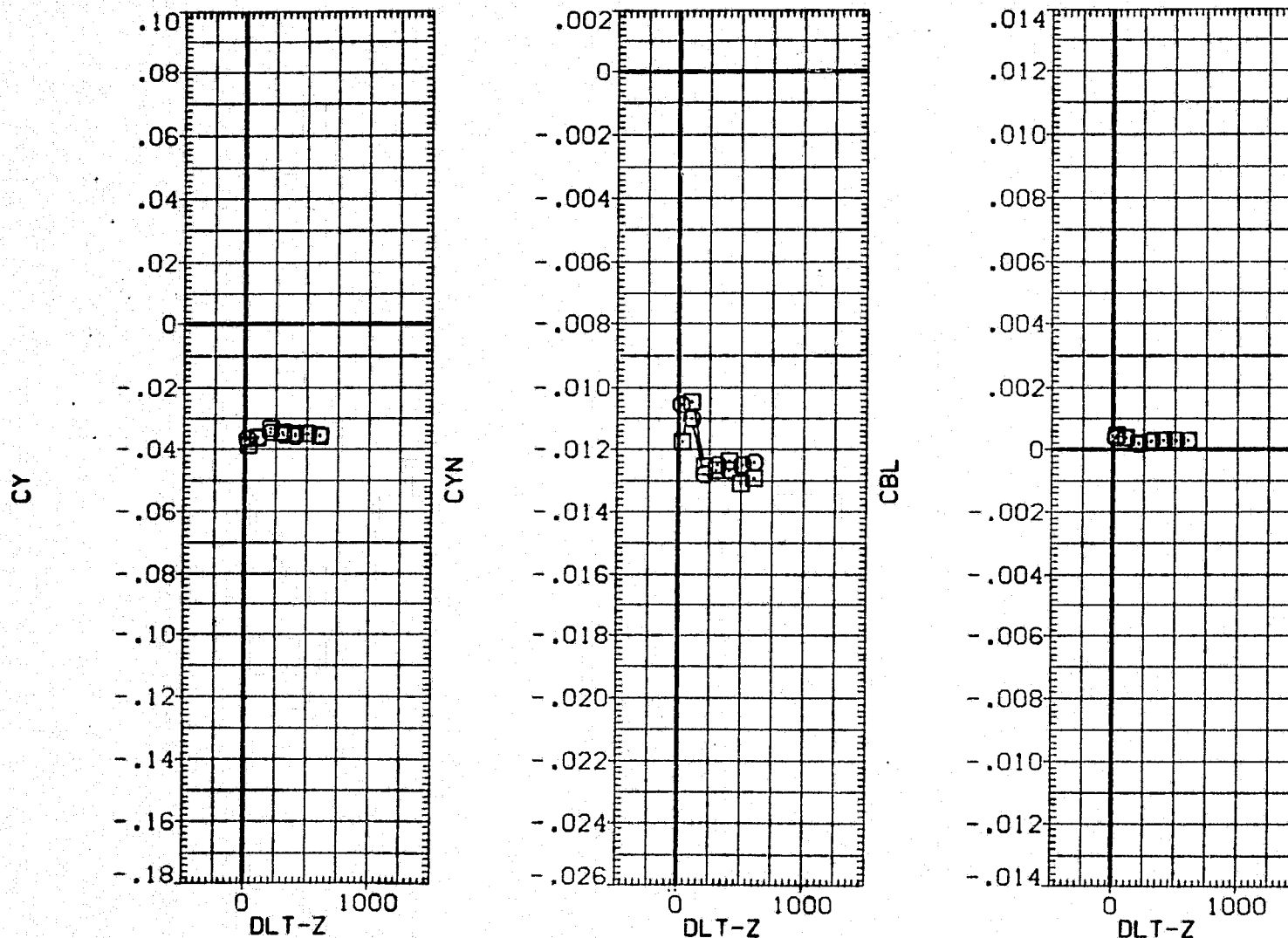


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR207)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.502	60.000	ALPHA	.000
□	200.470	.000	DLTALF	-10.000
◇	400.360	3.000	MACH	5.930
		.000	ELEVON	.000
		1.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

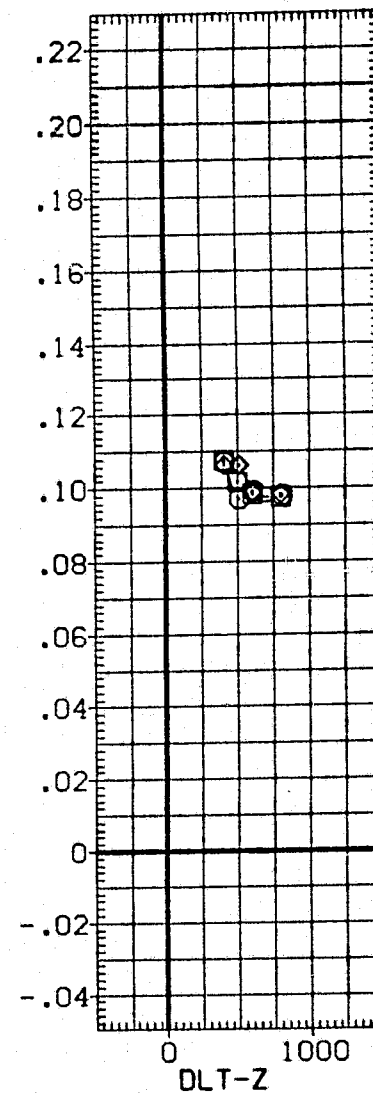
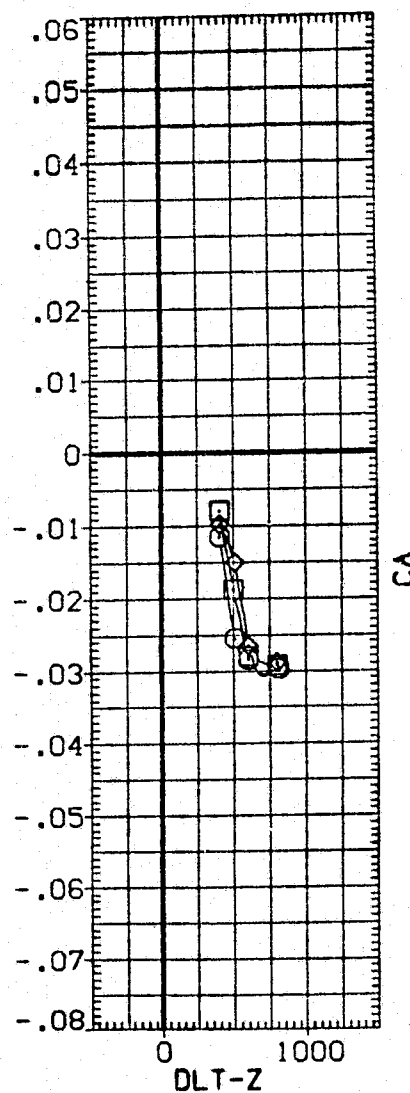
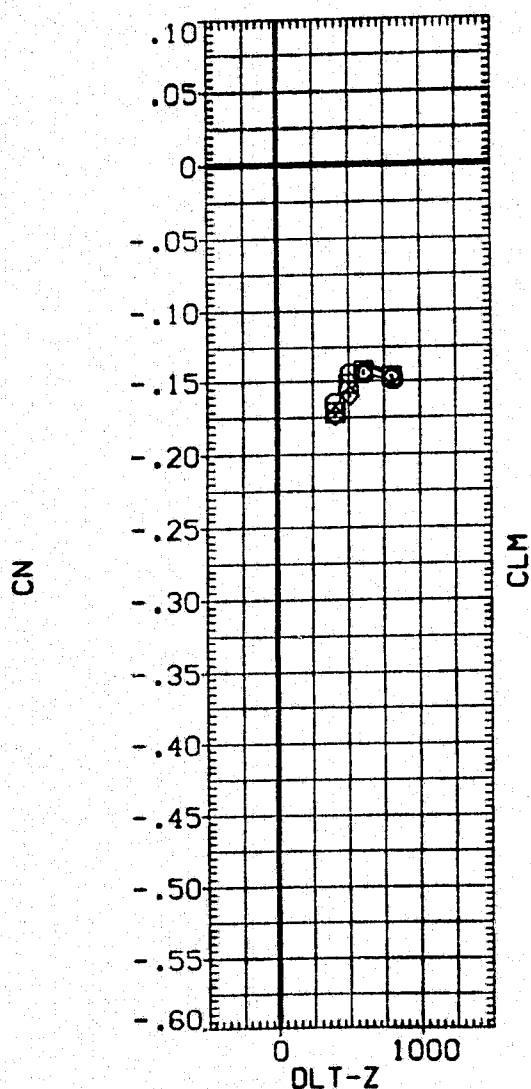


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR207)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.502	60.000	DLTALF	.000
□	200.470	.000	MACH	-10.000
◇	400.360	3.000	ELEVON	5.930
		AIRLON		.000
		GRID		1.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

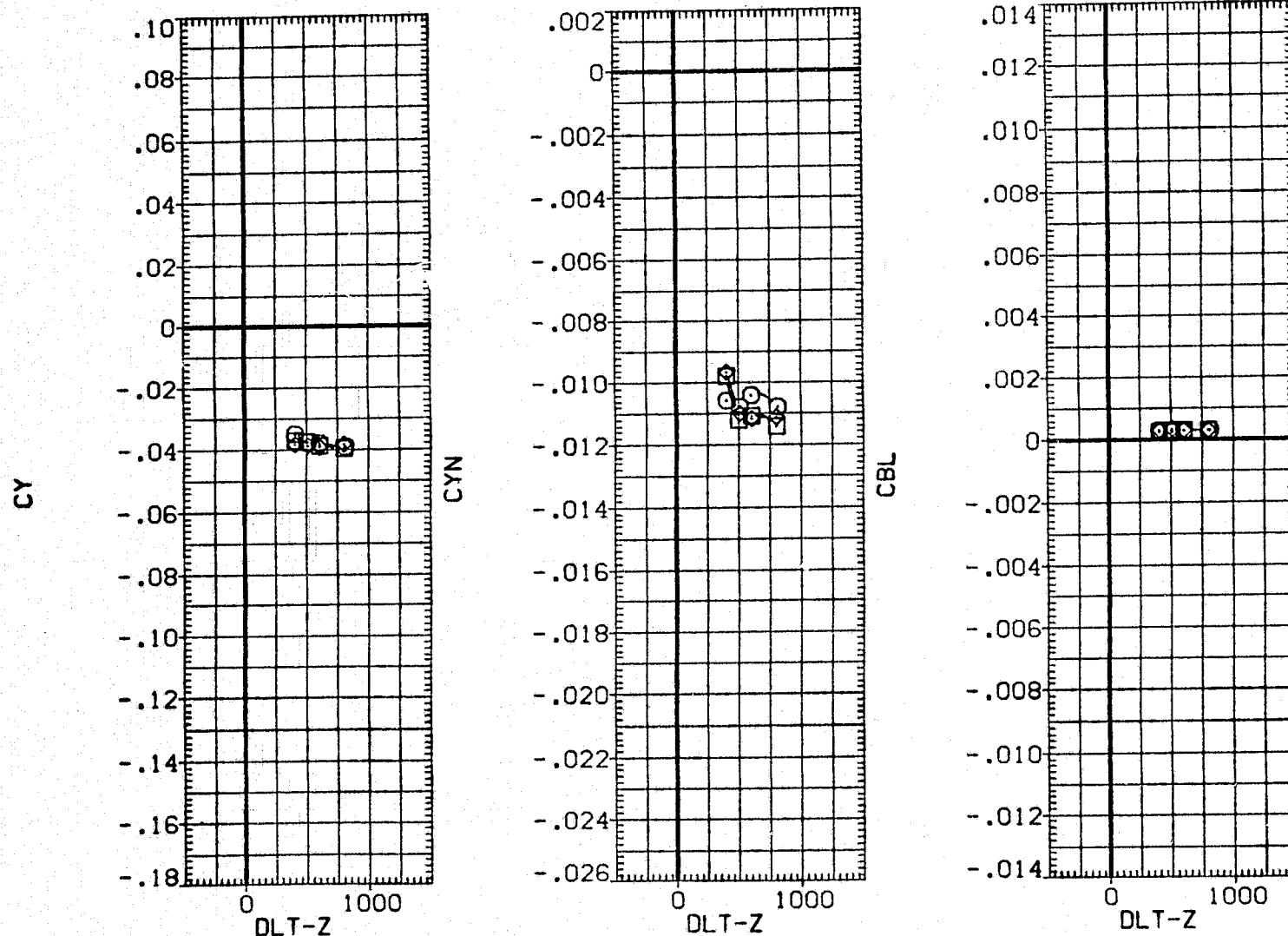


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR208)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.518	60.000	ALPHA	.000	
□	200.460	.000	DLTALF	-20.000	
◇	400.450	3.000	MACH	5.930	
		.000	ELEVON	.000	
		GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

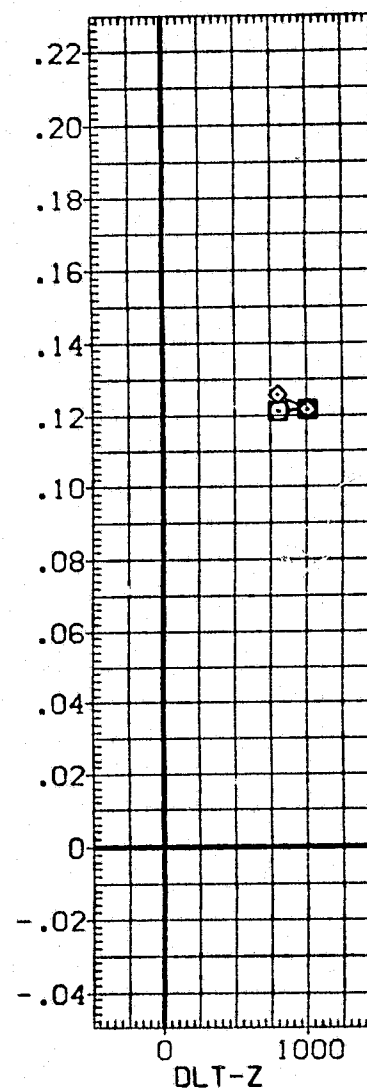
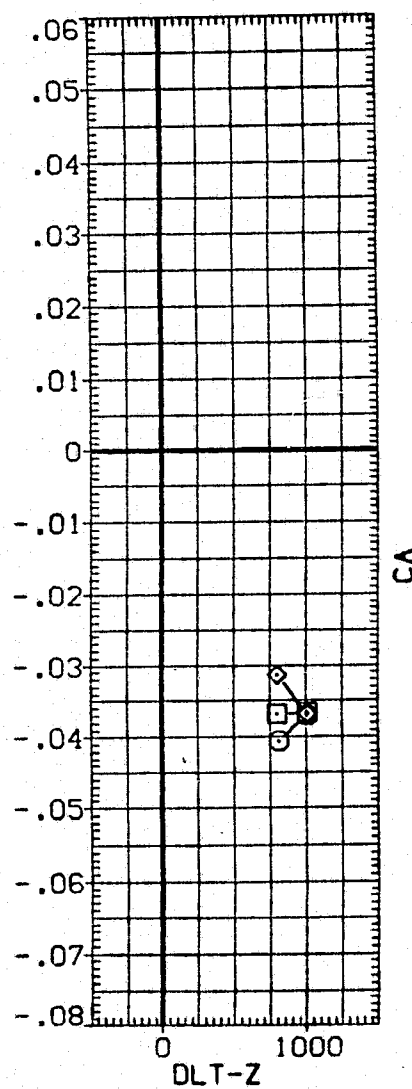
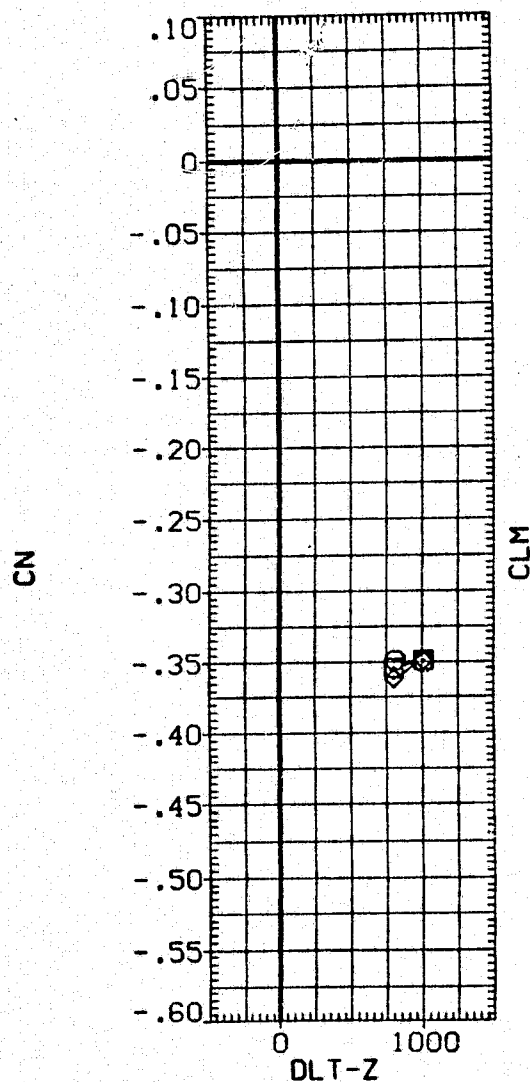


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR208)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.518	60.000	ALPHA	.000	
□	200.460	BETA	.000	DLTALF	-20.000
◇	400.450	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

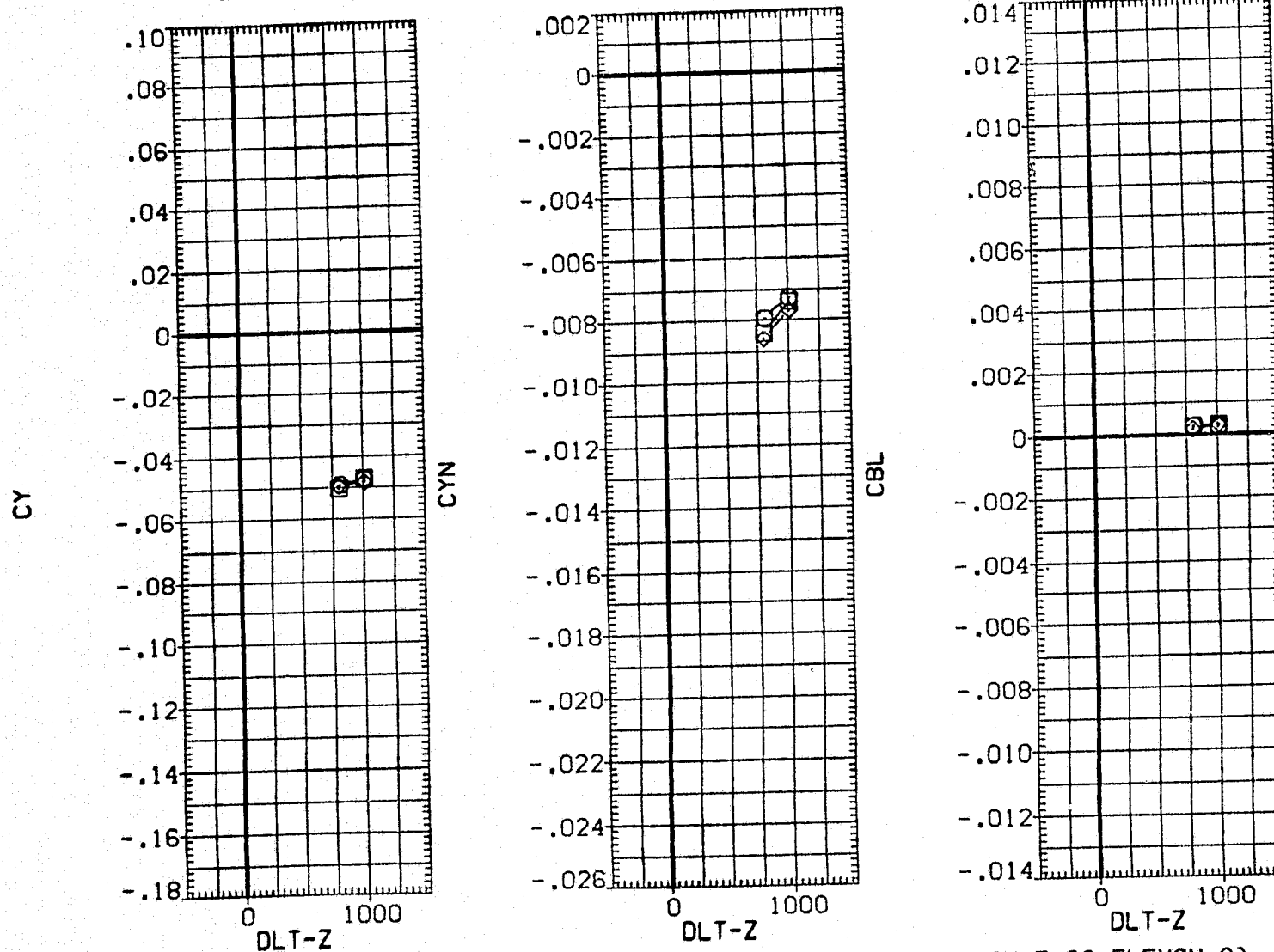


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR210)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.475	60.000	ALPHA	.000		
□	200.400	BETA	.000	DLTALF	-20.000	
◇	400.500	DLTBTA	3.000	MACH	5.930	
		AILRON	.000	ELEVON	.000	
		GRID	26.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

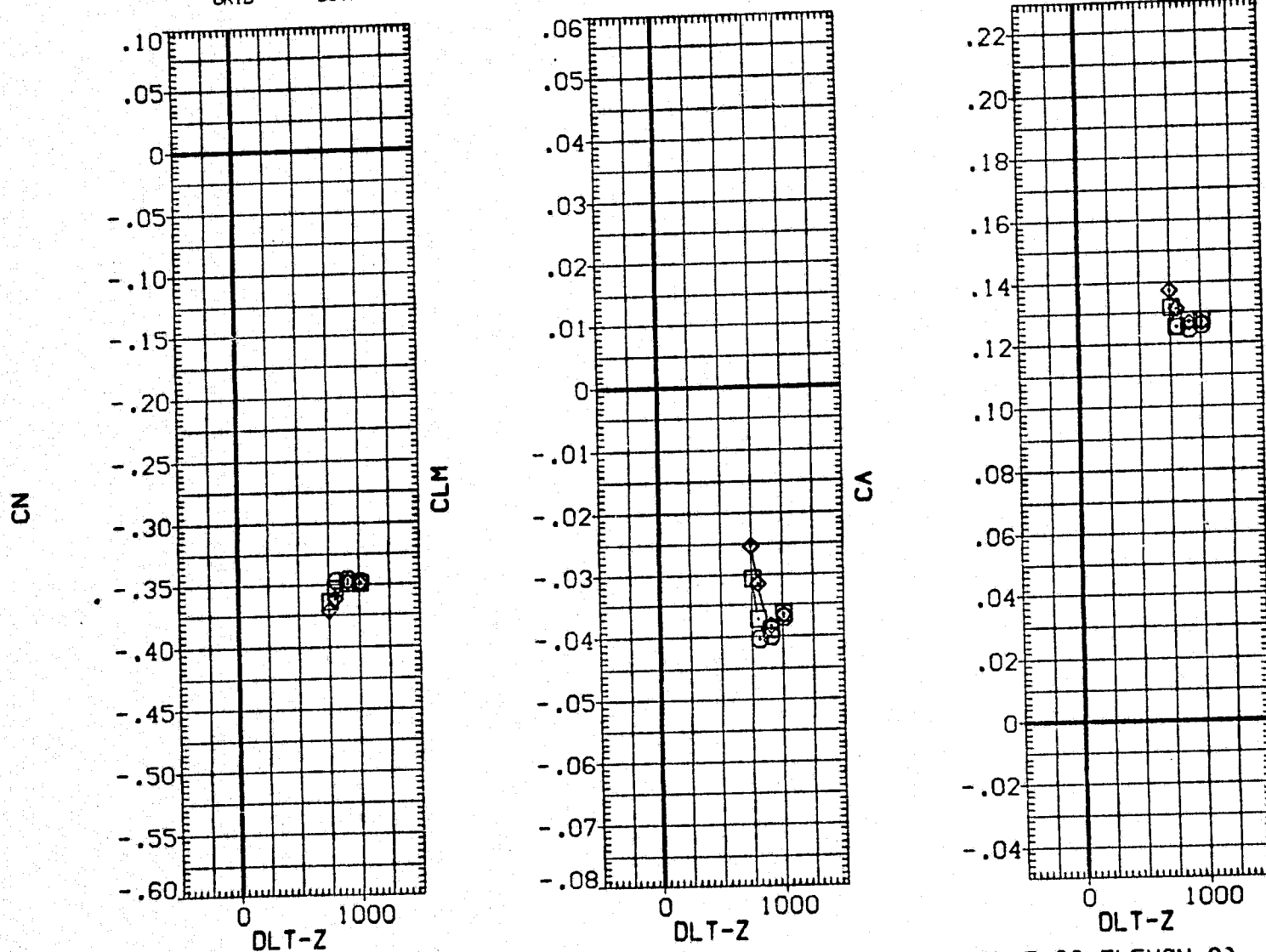


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR210)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	60.000	ALPHA	.000
○	.475	BETA	.000	DLTALF	-20.000
□	200.400	DLTBTA	3.000	MACH	5.930
◇	400.500	AILRON	.000	ELEVON	.000
		GRID	26.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

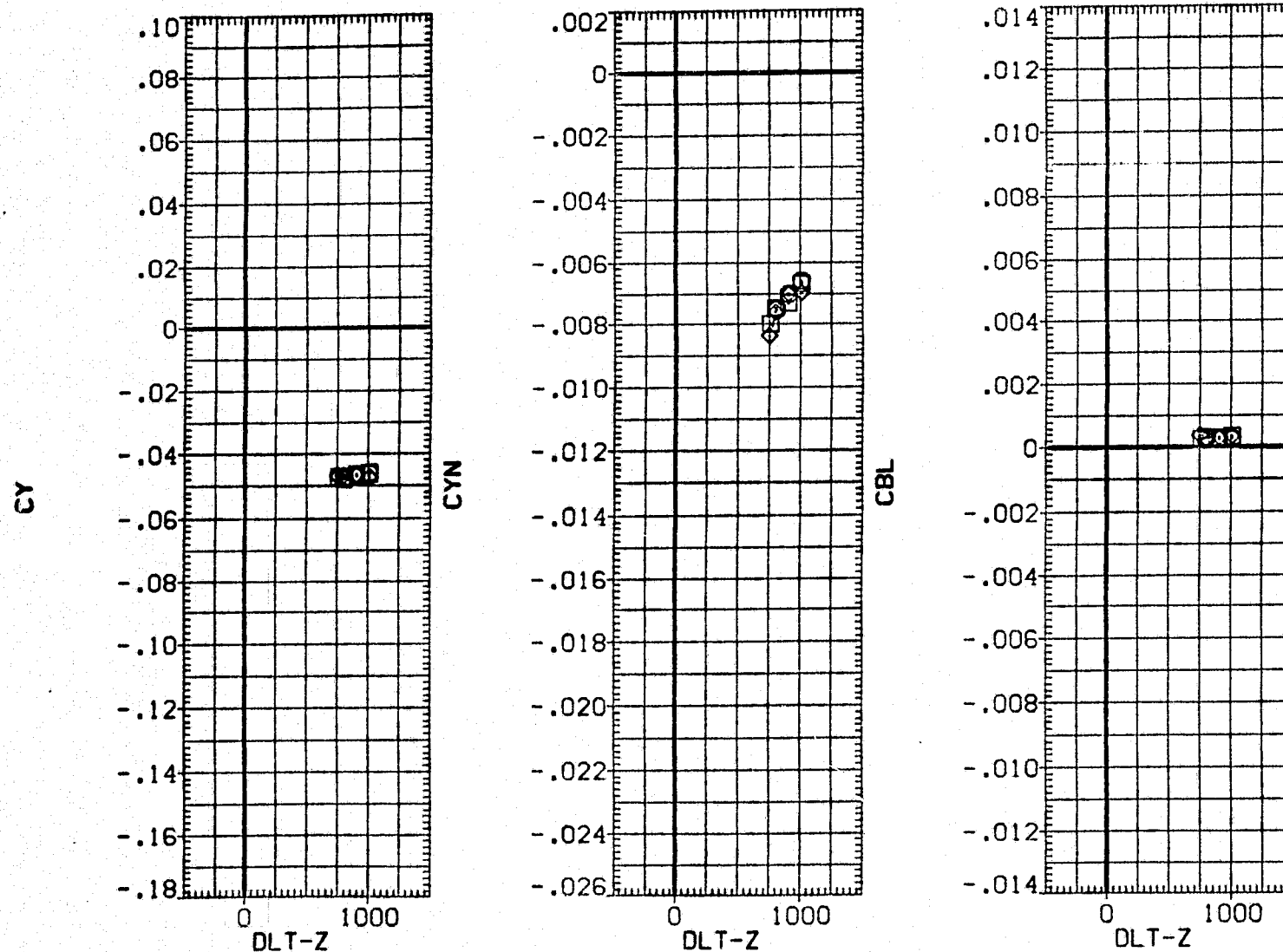


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR211)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.554	60.000	ALPHA	.000	
□	200.600	3.000	DLTALF	.000	
		.000	MACH	5.930	
		.000	ELEVON	.000	
		3.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

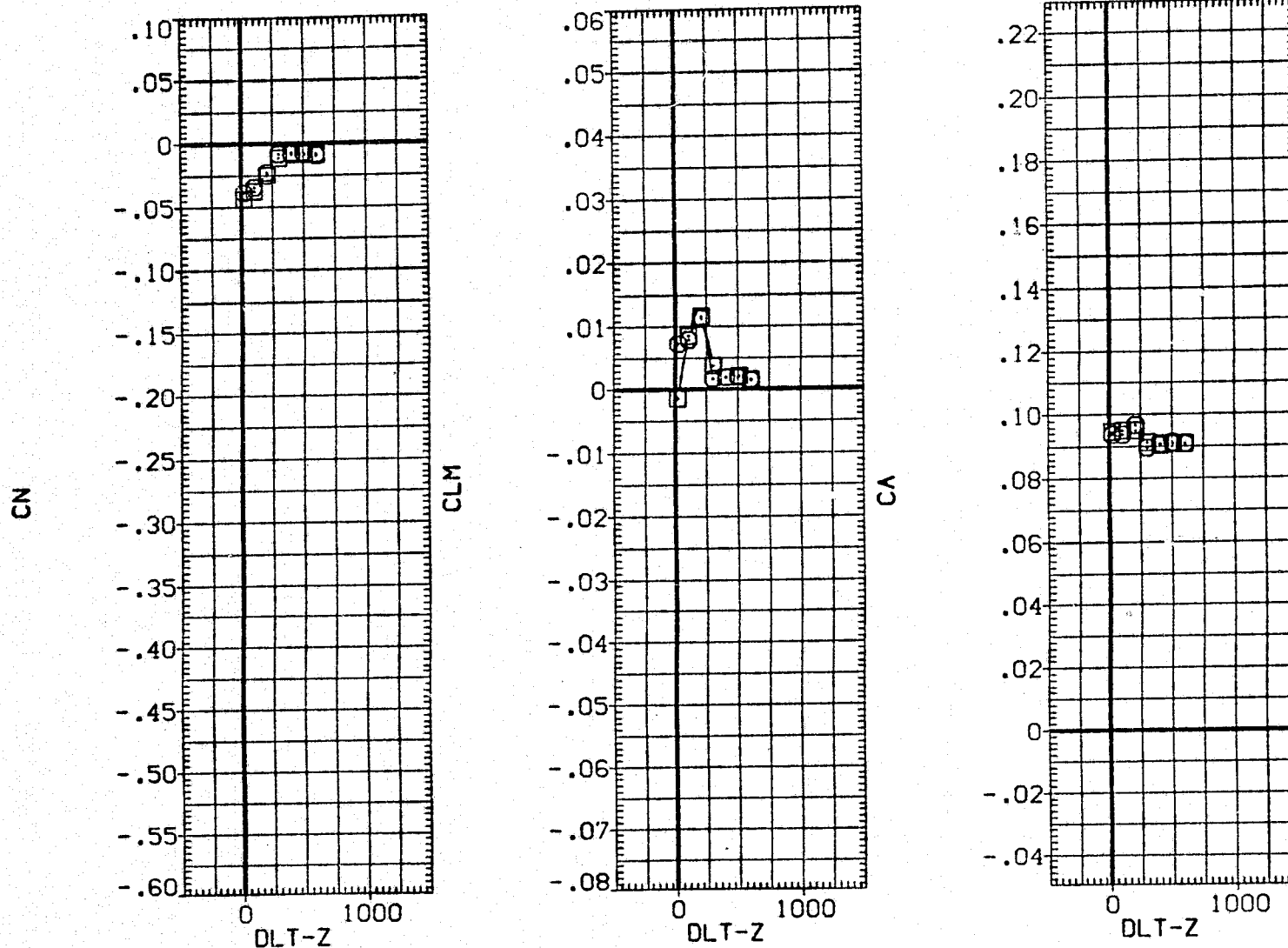


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR211)

SYMBOL		PARAMETRIC VALUES	
○	DLT-X .554	DLT-Y 60.000	ALPHA .000
□	200.600	BETA 3.000	DLTALF .000
		DLT8TA .000	MACH 5.930
		AILRON .000	ELEVON .000
		GRID 3.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

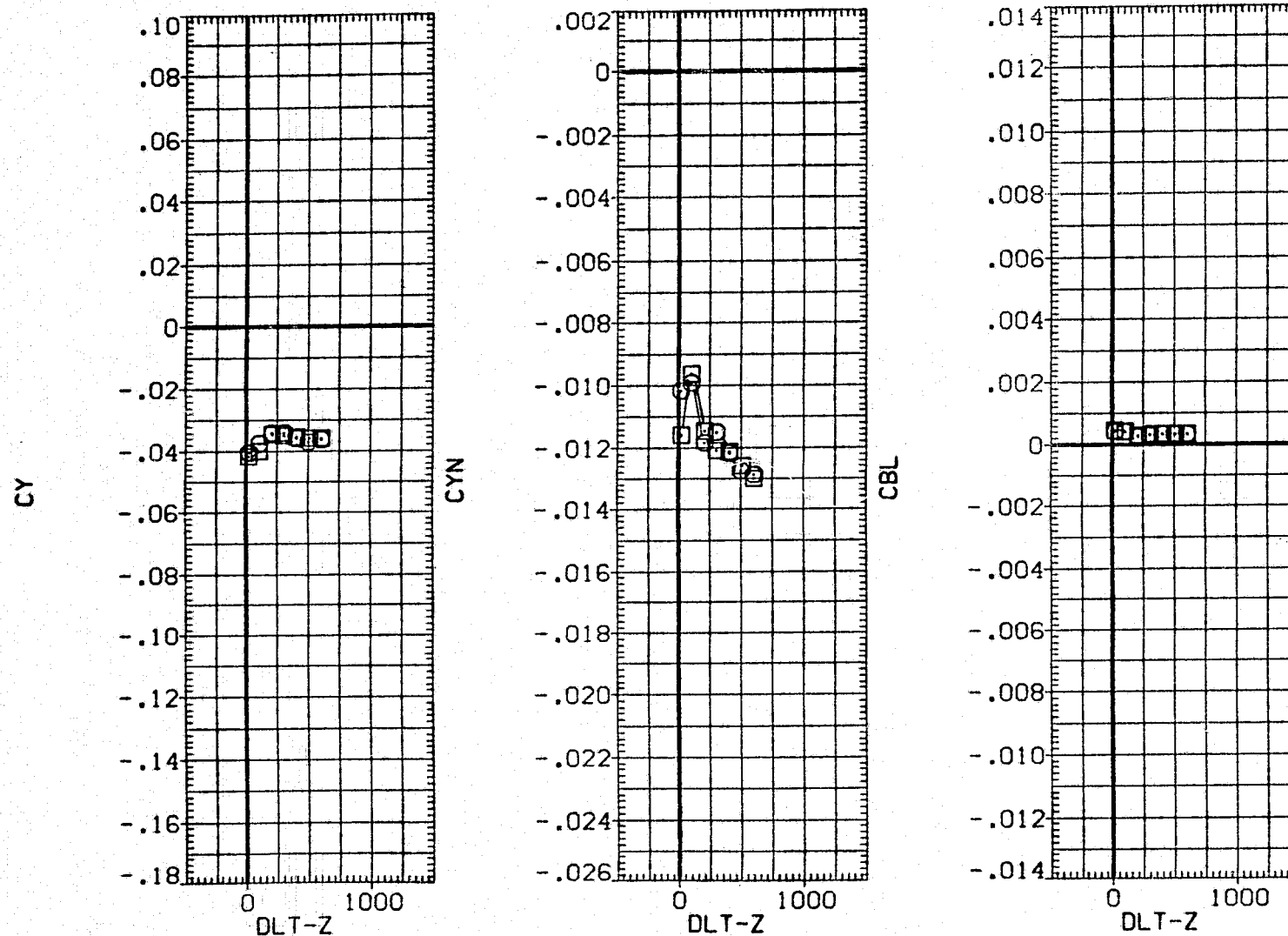


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR212)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
○	.462	60.000	ALPHA	.000	-10.000
□	200.550	3.000	BETA	.000	5.930
◇	400.530	.000	DLTBTA	.000	.000
		.000	AILRON	.000	
		3.000	GRID	.000	

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

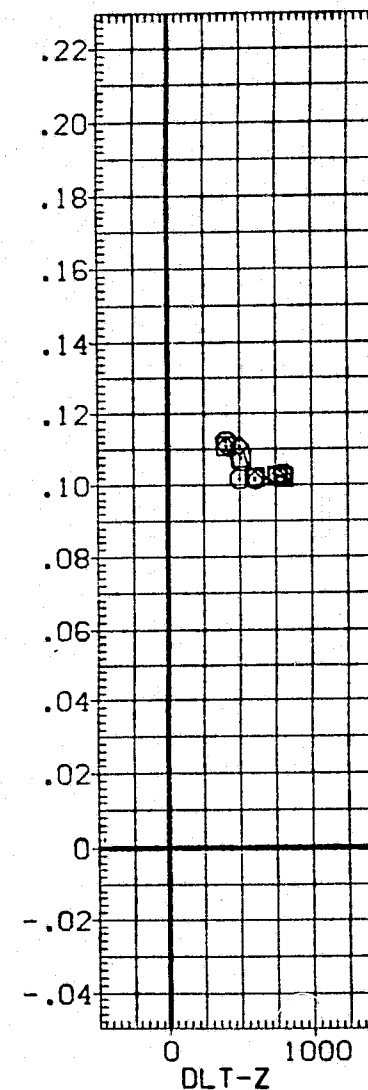
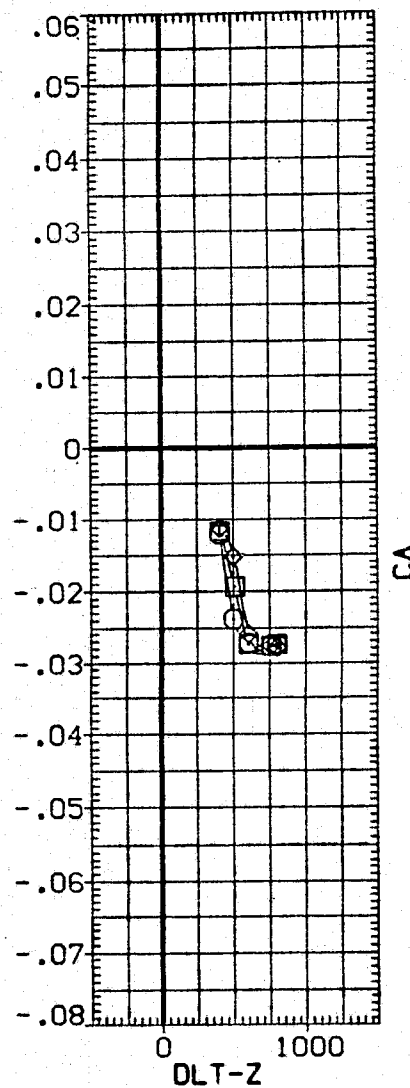
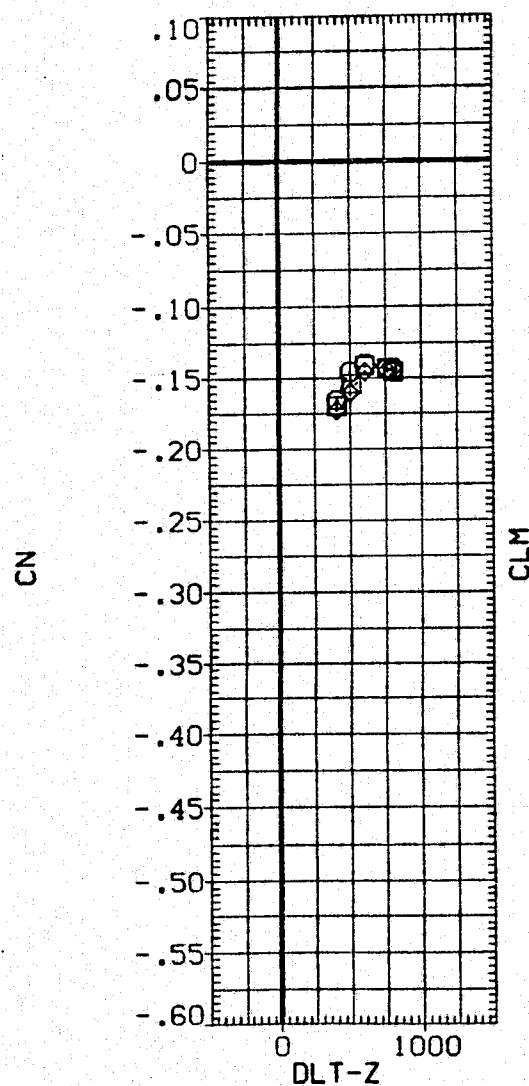


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR212)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-Y	BETA	DLTBT	AILRON	GRID
○	.462	60.000	ALPHA	.000	
□	200.550	3.000	DLTALF	-10.000	
◇	400.530	.000	MACH	5.930	
		.000	ELEVON	.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

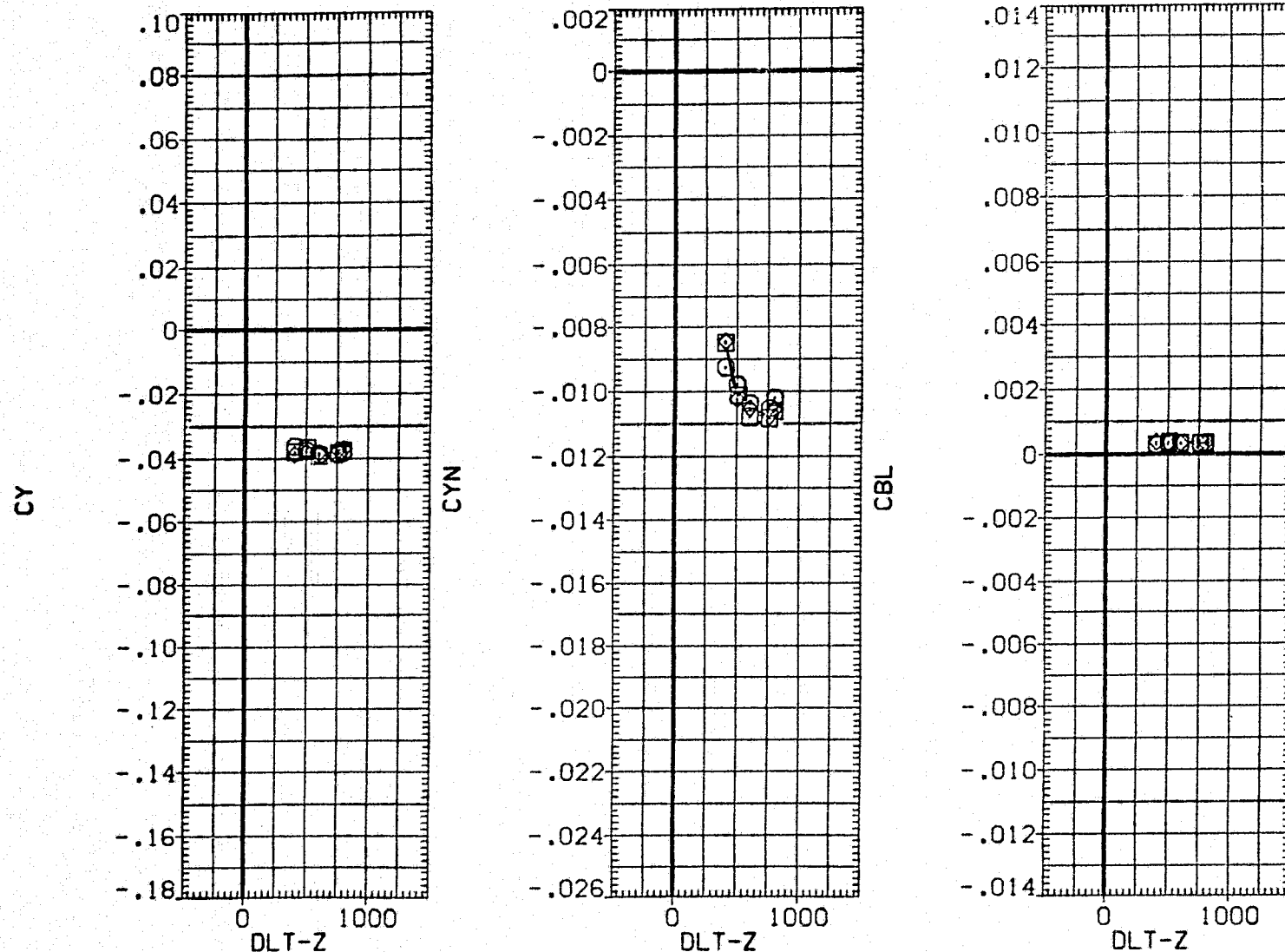


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR214)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.443	60.000	ALPHA	.000
□	200.490	BETA 3.000	DLTALF	-20.000
◇	400.390	DLTBTA .000	MACH	5.930
		AILRON .000	ELEVON	.000
		GRID 3.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

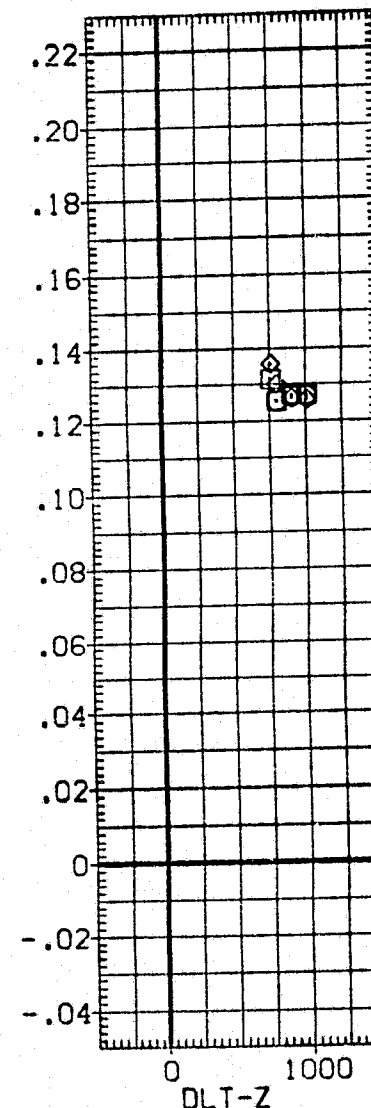
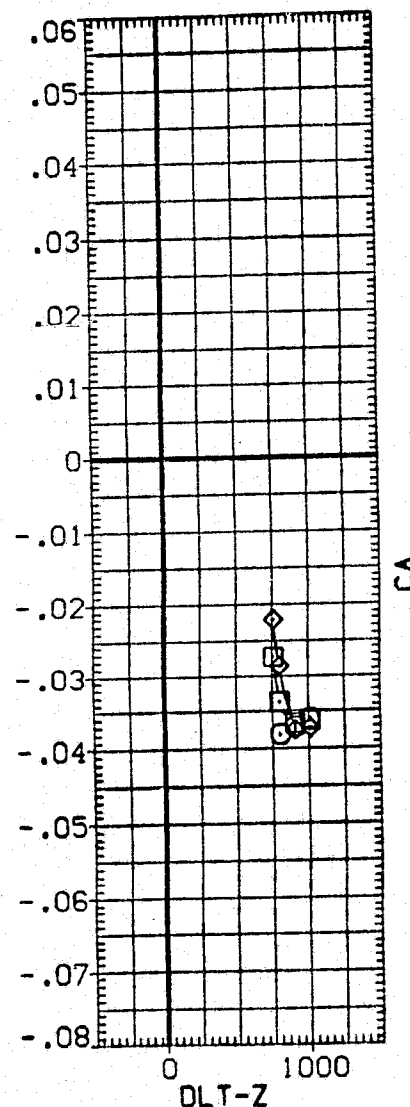
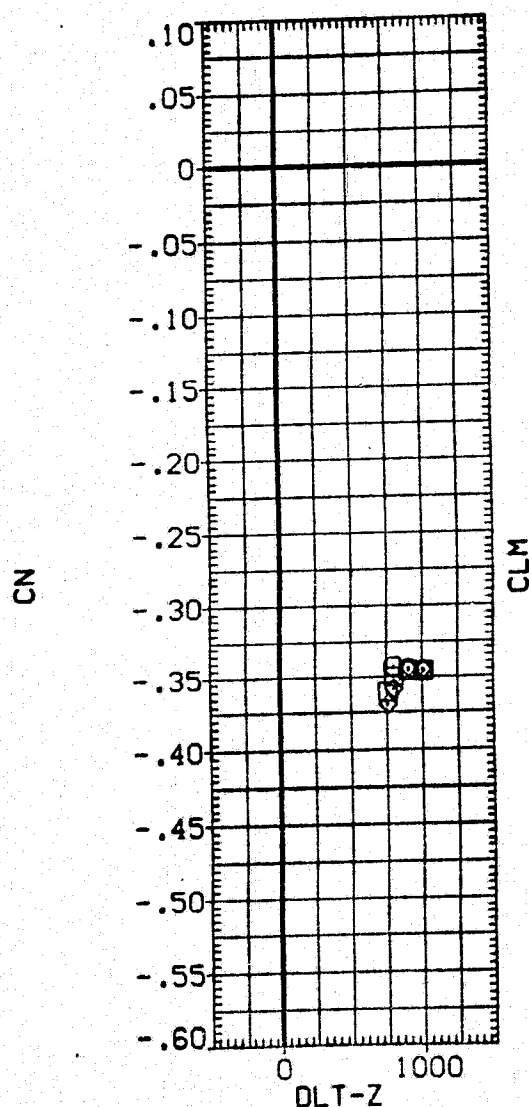


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR214)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.443	60.000	BETA	3.000	DLTALF
□	200.490	.000	DLTBTA	.000	MACH
◇	400.390	.000	AILRON	.000	ELEVON
		GRID	3.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

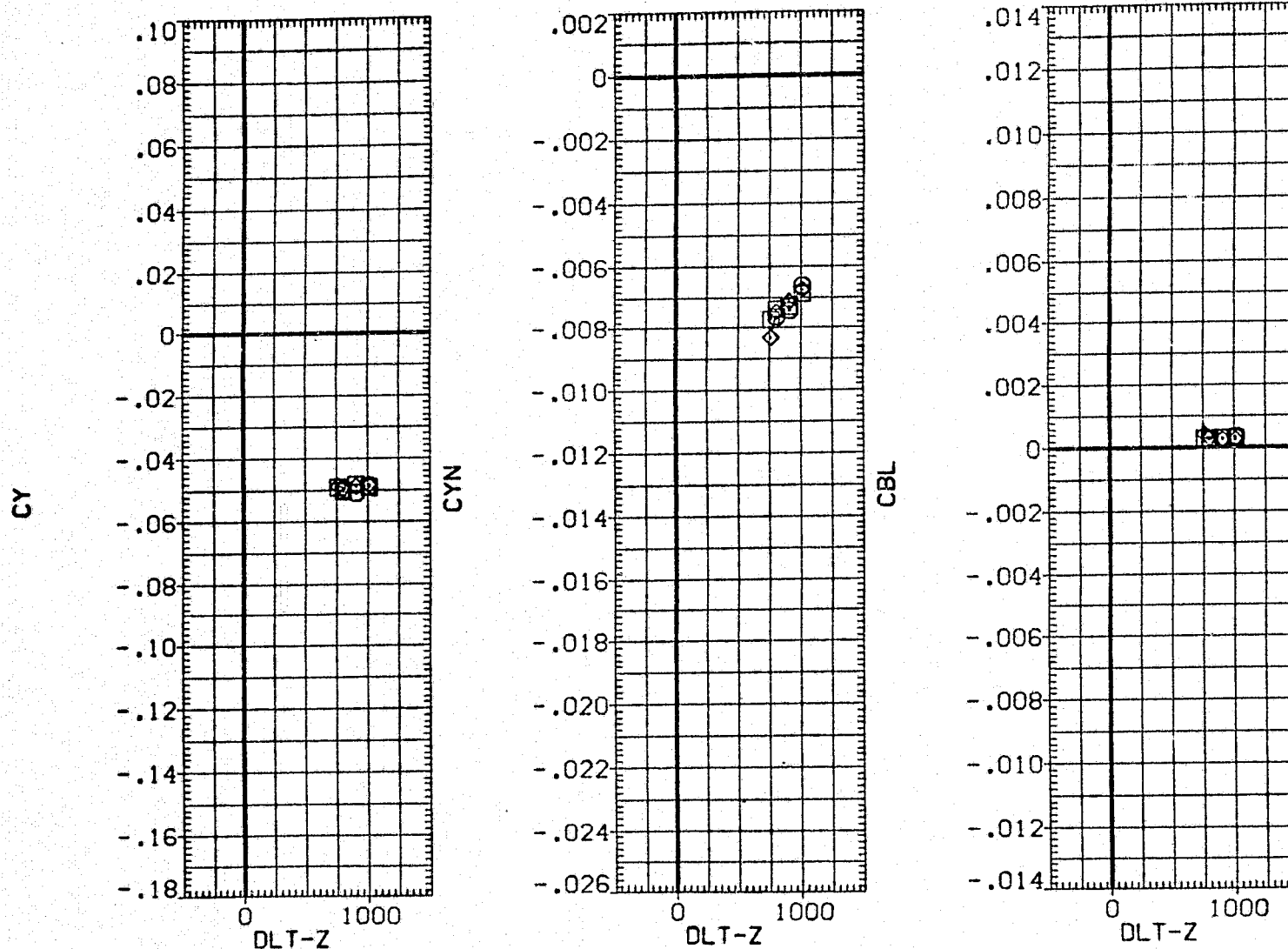
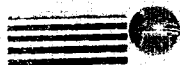


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)



AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR215)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	60.000	ALPHA	.000	
○	.647	BETA	3.000	DLTALF	.000	
□	200.660	DLTBT	3.000	MACH	5.930	
		AILRON	.000	ELEVON	.000	
		GRID	3.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

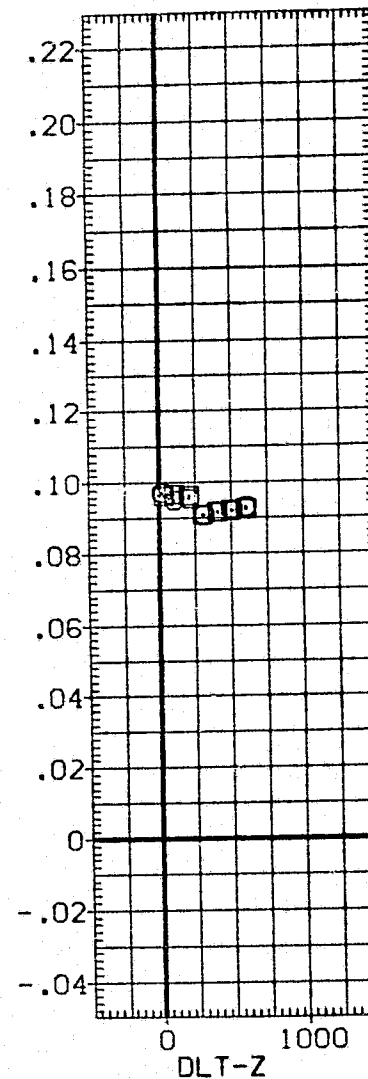
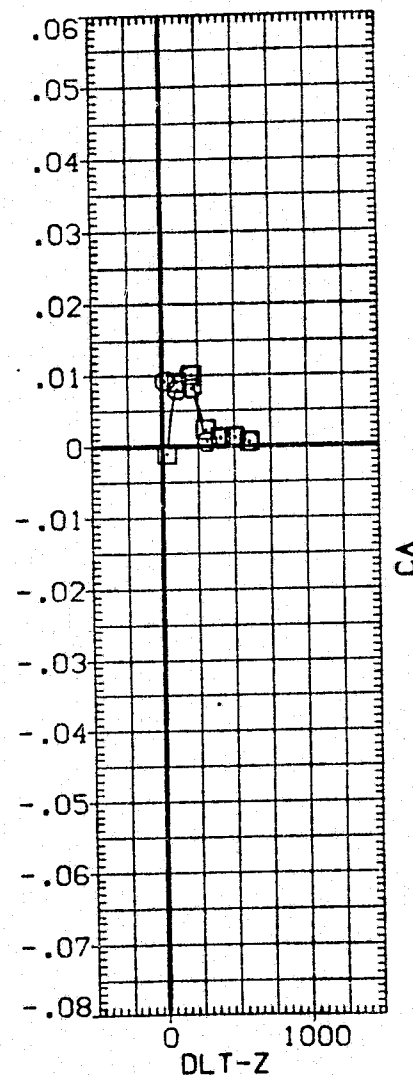
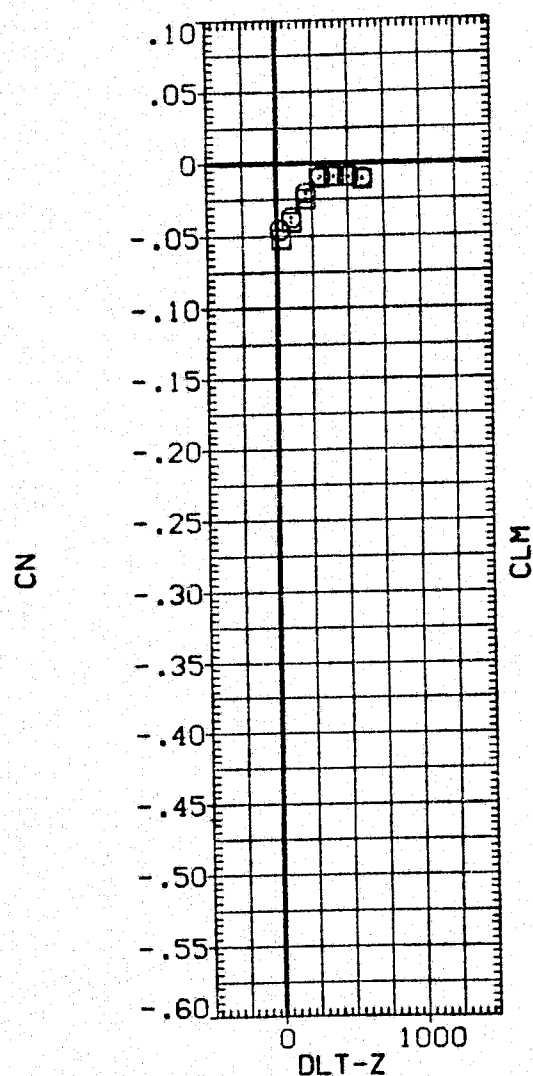


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR215)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.647	60.000	DLTALF	.000	
□	200.660	3.000	MACH	5.930	
		3.000	ELEVON	.000	
		GRID			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

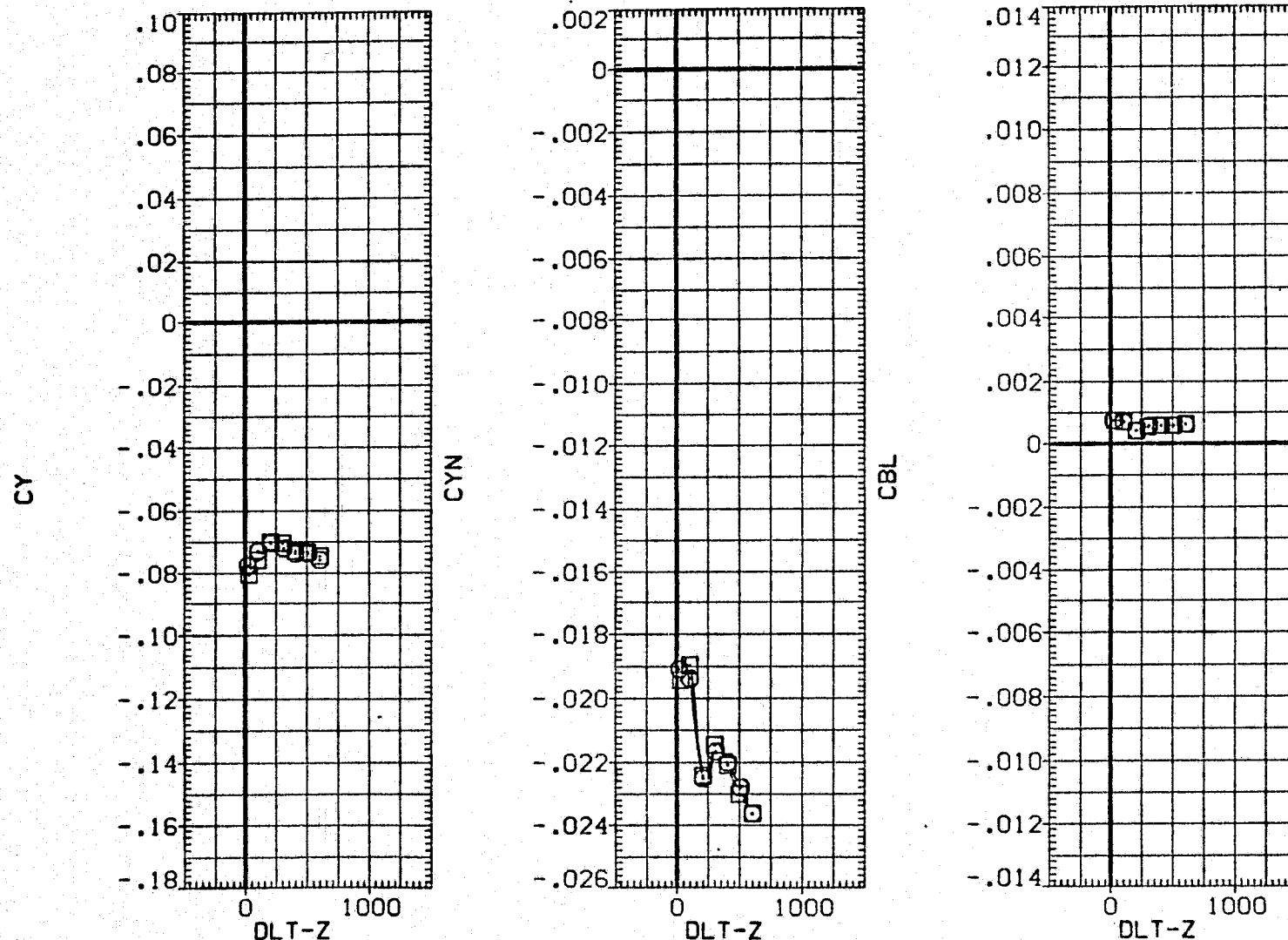


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR216)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.532	60.000	DLTALF	-10.000	
□	200.510	BETA	3.000	MACH	5.930
◇	400.500	DLTBTA	3.000	ELEVON	.000
		ATLRON	.000		
		GRID	3.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

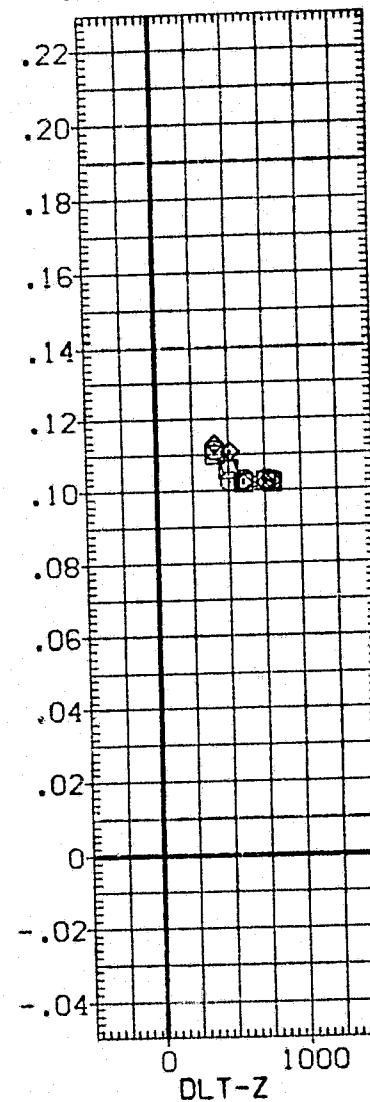
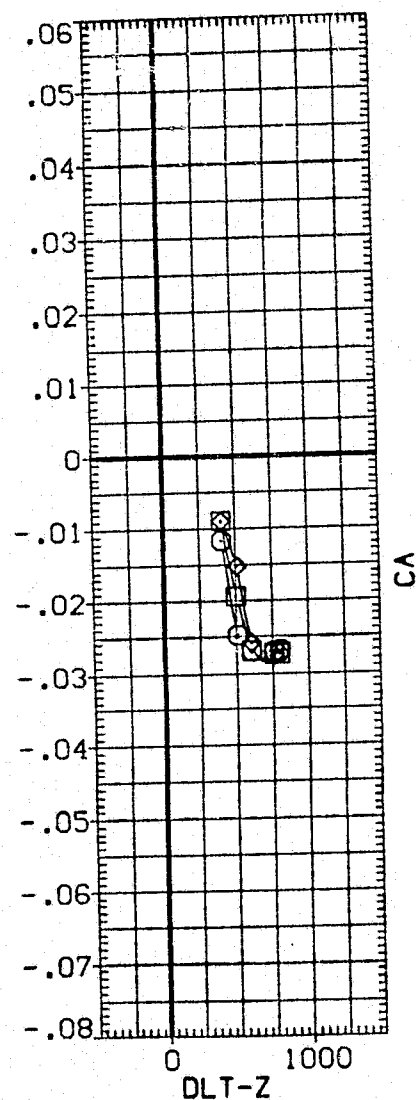
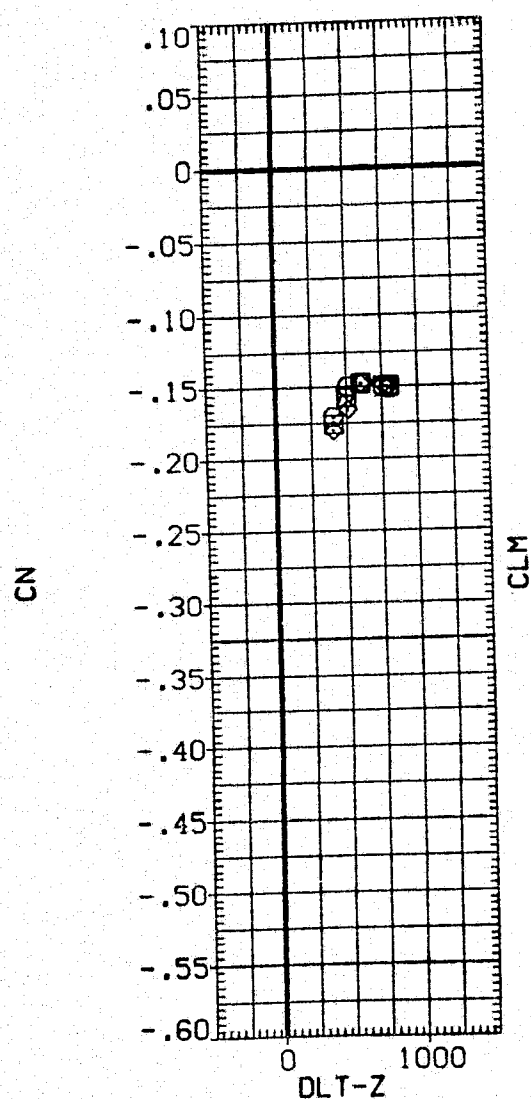


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR216)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-X	DLT-Y	DLT-Y	ALPHA	
○	.532	60.000	60.000	.000	
□	200.510	BETA	3.000	DLTALF	-10.000
◇	400.500	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	3.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

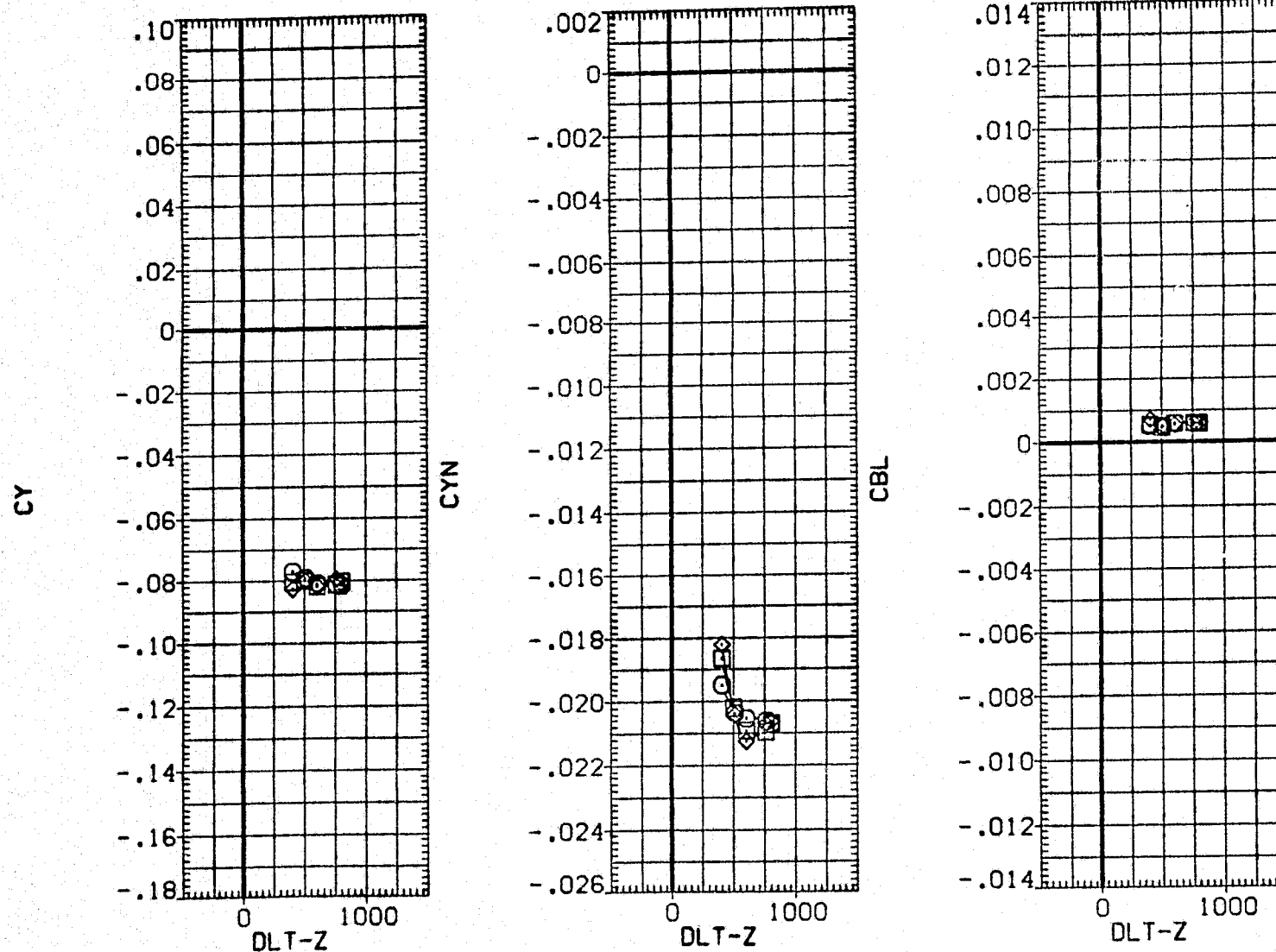


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR218)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.529	60.000	.000	-20.000	5.930	.000
□	200.550	3.000	.000	.000	.000	.000
◇	400.540	3.000	.000	.000	.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

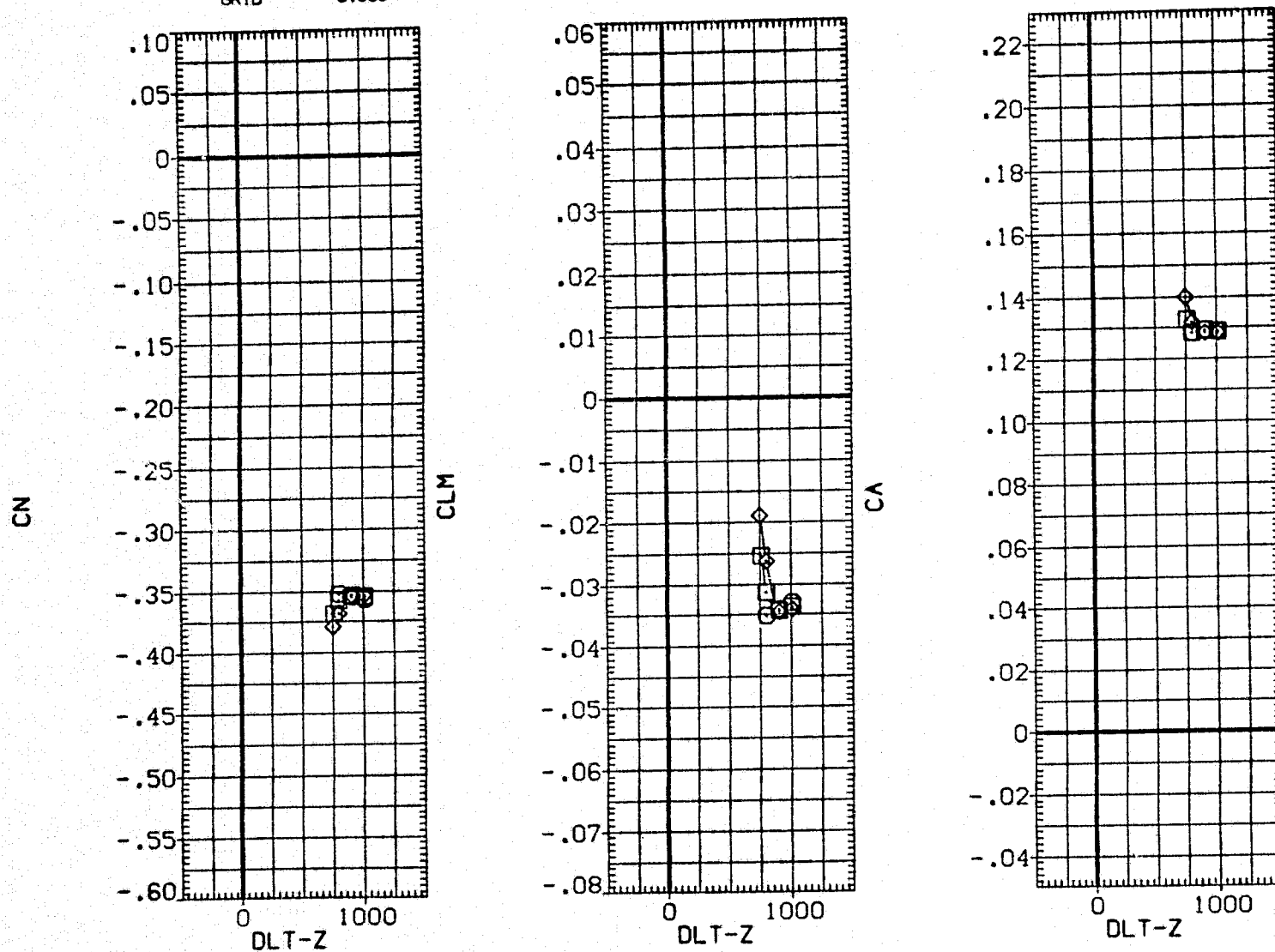


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR218)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.529	60.000	ALPHA	.000	
	200.550	BETA	3.000	DLTALF	-20.000
	400.540	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	3.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

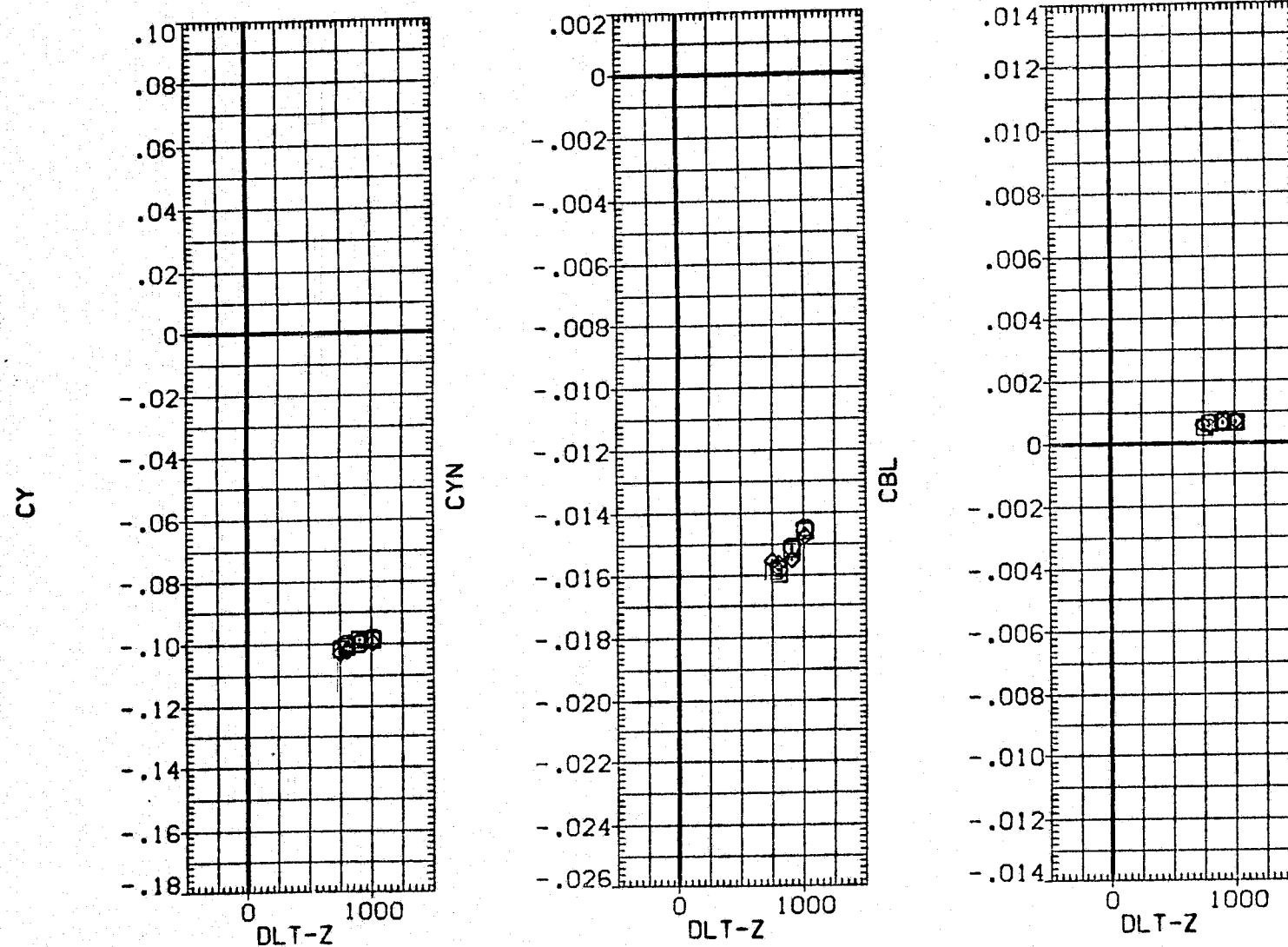


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR219)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
○	.603	60.000	ALPHA		5.000
□	200.600	BETA	.000	DLTALF	.000
◇	400.510	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	5.000		

REFERENCE INFORMATION	
SREF	2630.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

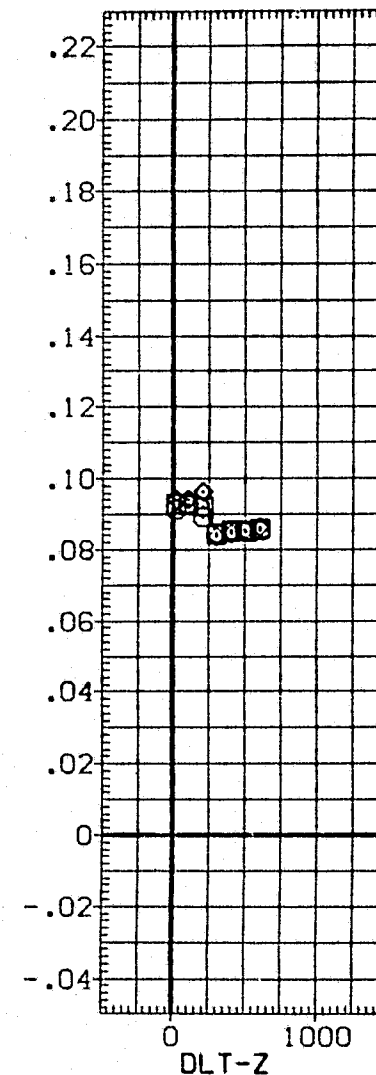
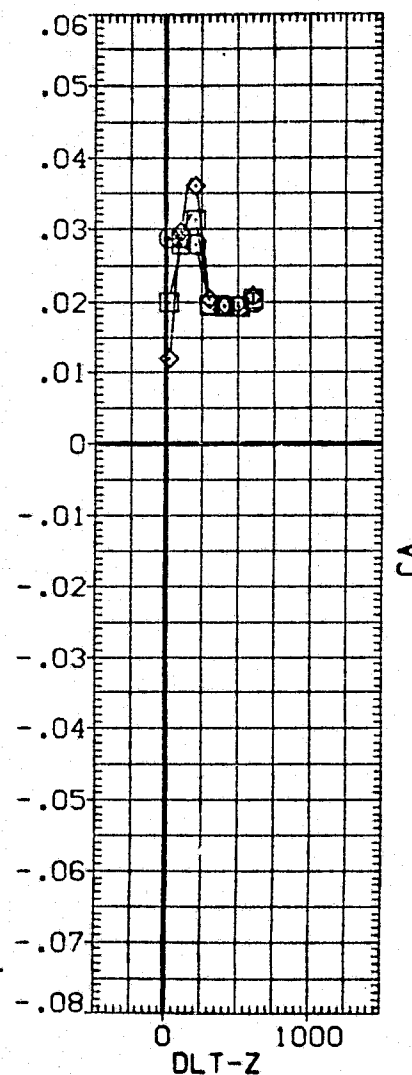
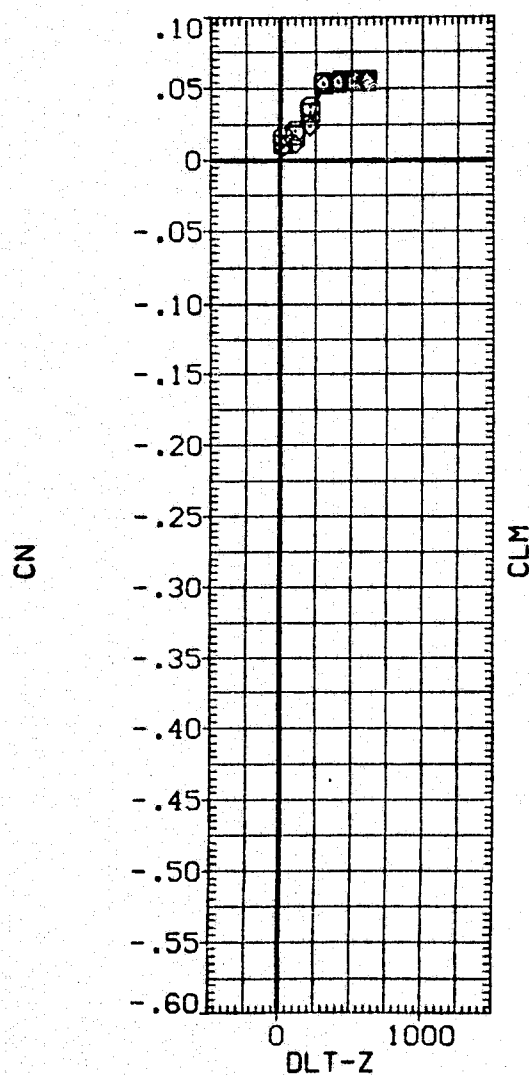


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR219)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.603		60.000	5.000	
□	200.600	BETA	.000	DLTALF	.000
◇	400.510	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	5.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

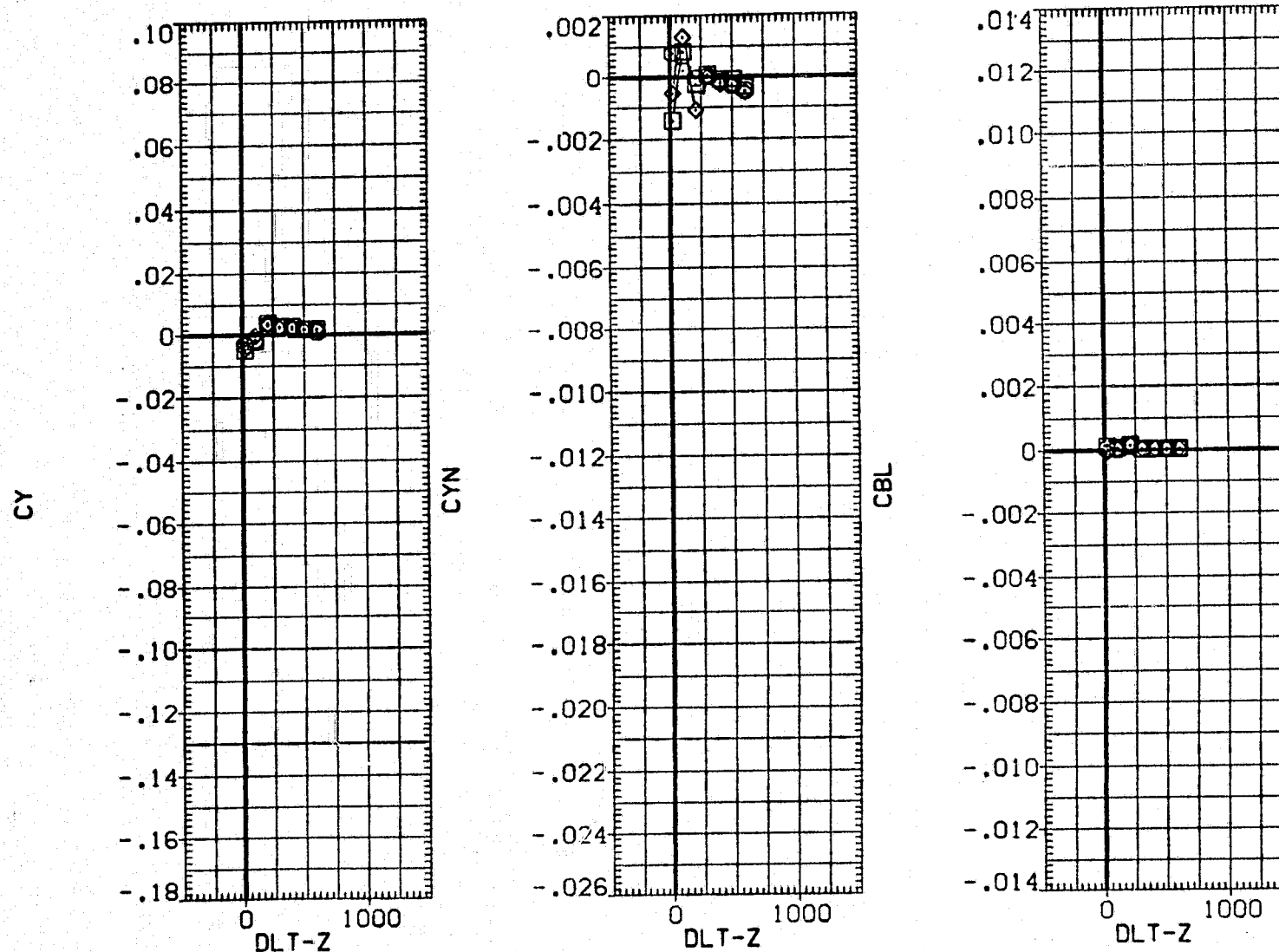


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR220)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-Y	DLT-Z	ALPHA	DLTALF	ELEVON
○	.445	200.490	60.000	-10.000	5.000
□	.445	200.490	.000	5.930	.000
◇	.445	200.490	.000	.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

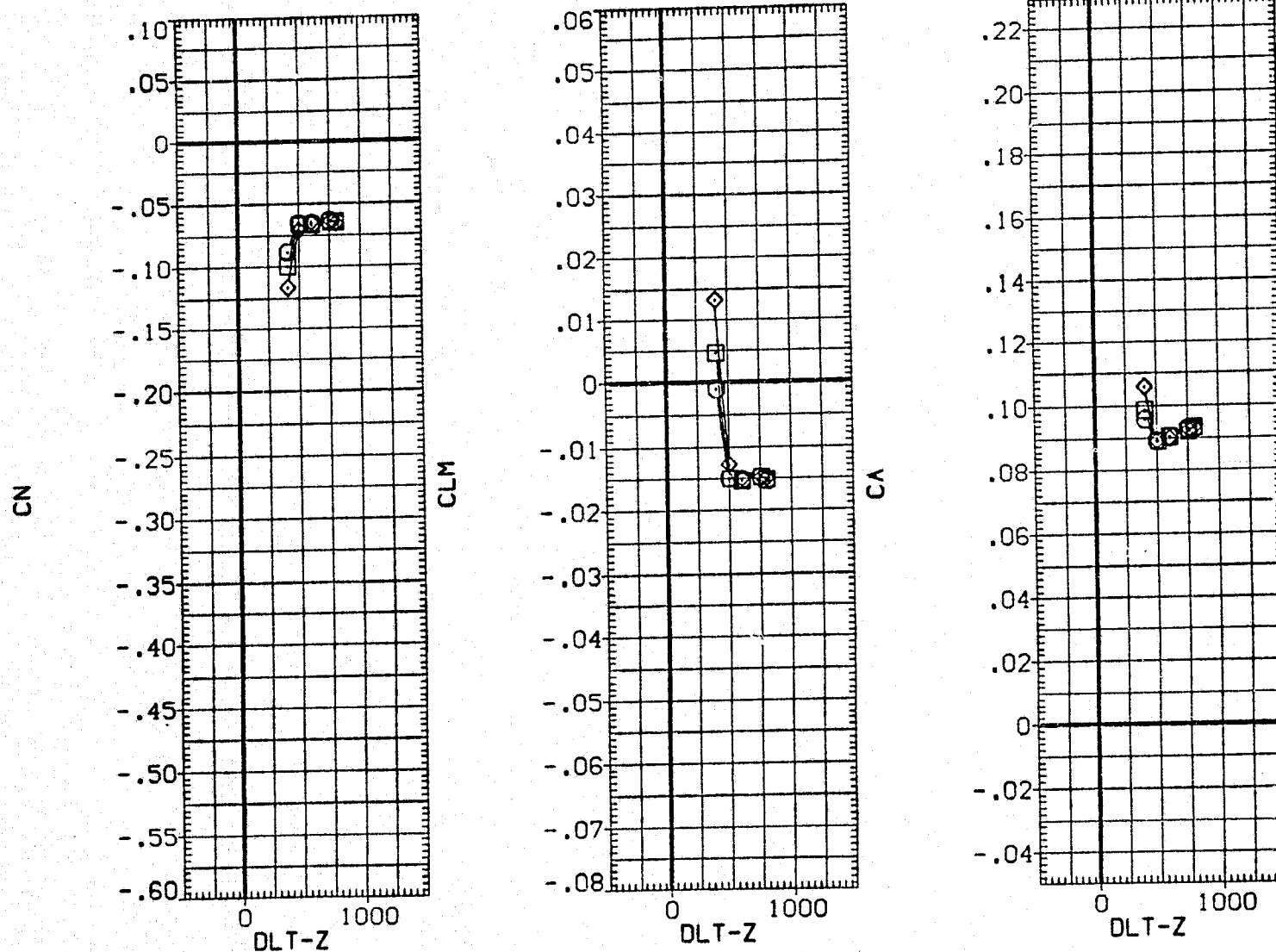


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR220)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.445	60.000	ALPHA	5.000
□	200.490	BETA	DLTALF	-10.000
◇	400.510	DLTBTA	MACH	5.930
		AILRON	ELEVON	.000
		GRID		5.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

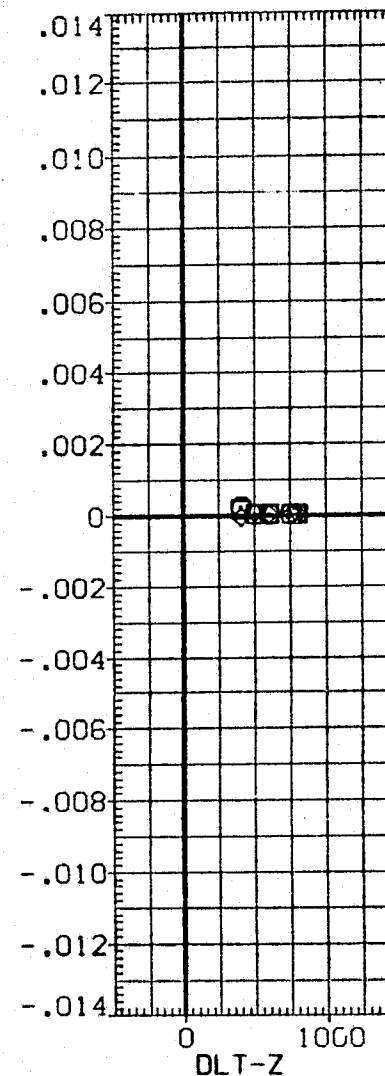
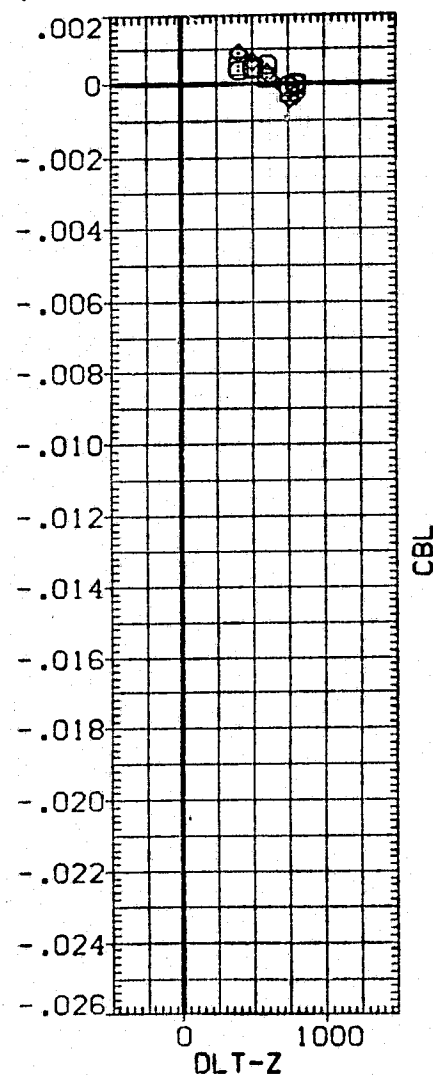
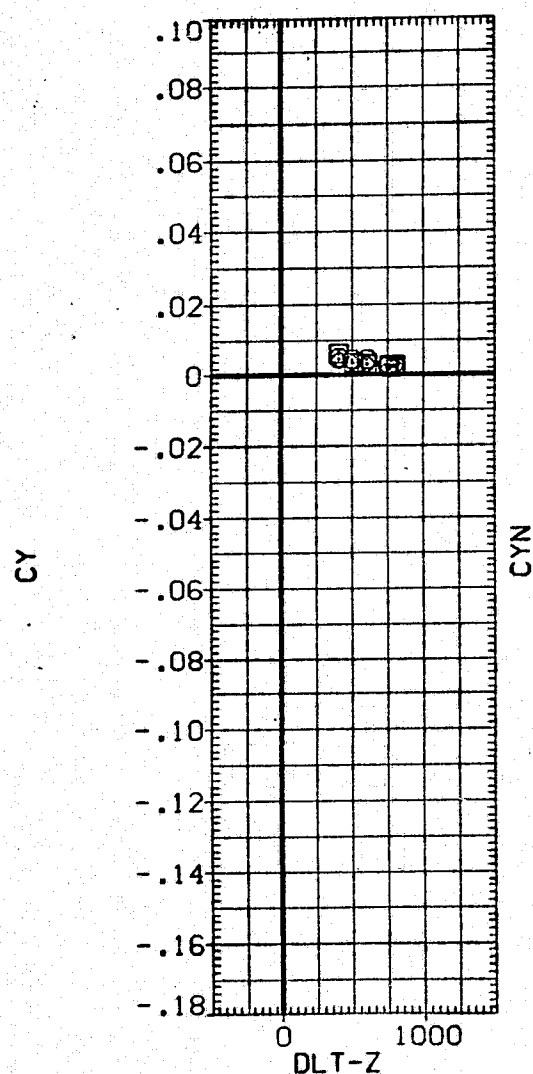


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR222)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.430	60.000	ALPHA	5.000
□	200.440	BETA	DLTALF	-20.000
◇	400.480	DLTBTA	MACH	5.930
		AIRON	ELEVON	.000
		GRID		5.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

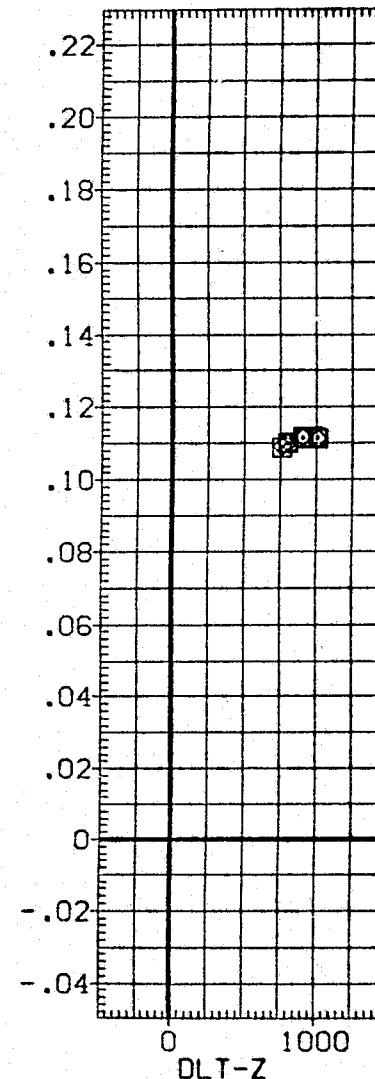
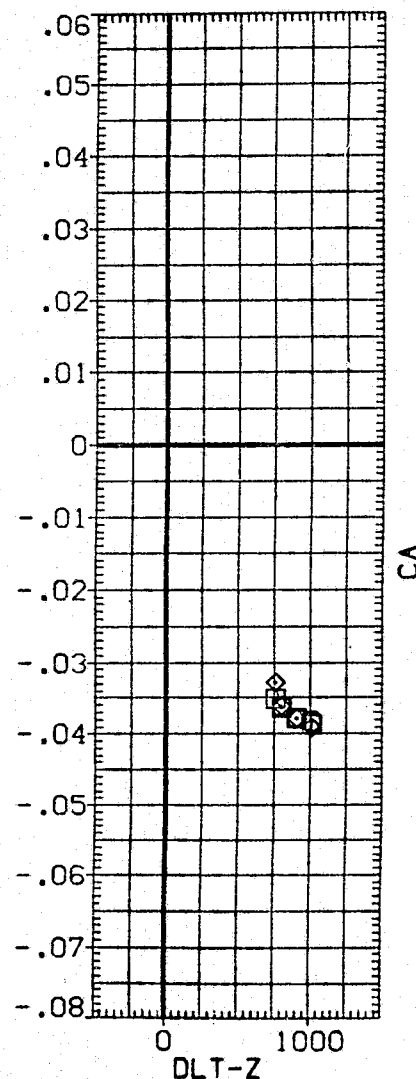
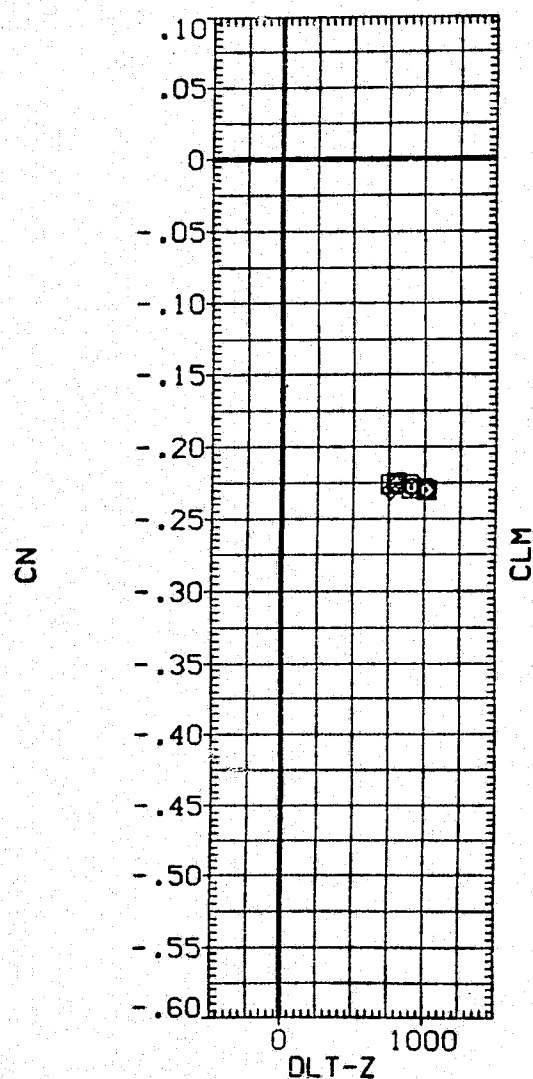


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR222)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.430	60.000	DLTALF	5.000
□	200.440	.000	MACH	-20.000
◇	400.480	.000	ELEVON	5.930
		AILRON		.000
		GRID	5.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

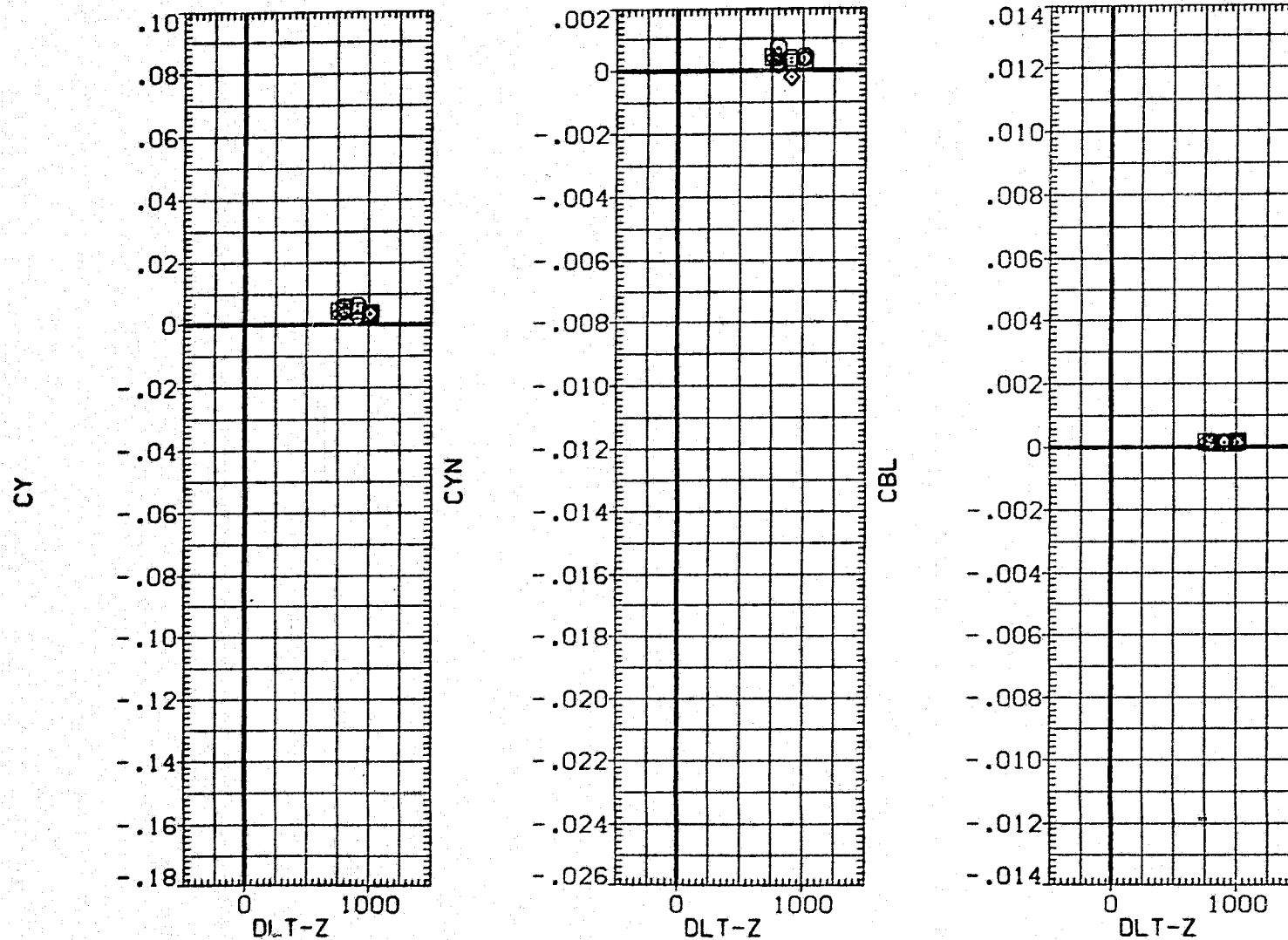


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR223)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.576	60.000	DLTALF	5.000
□	200.560	.000	MACH	.000
		3.000	ELEVON	5.930
		.000		.000
		5.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRF	1360.1000 IN. XT
YMRF	.0000 IN. YT
ZMRF	416.4000 IN. ZT
SCALE	.0100

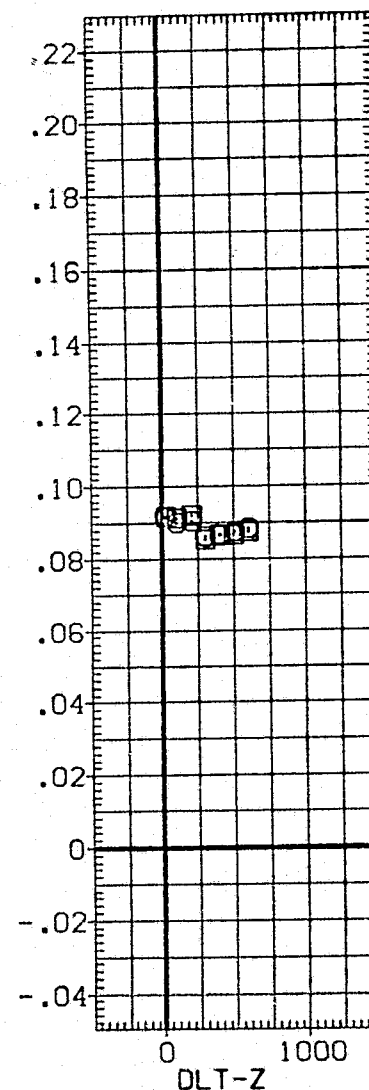
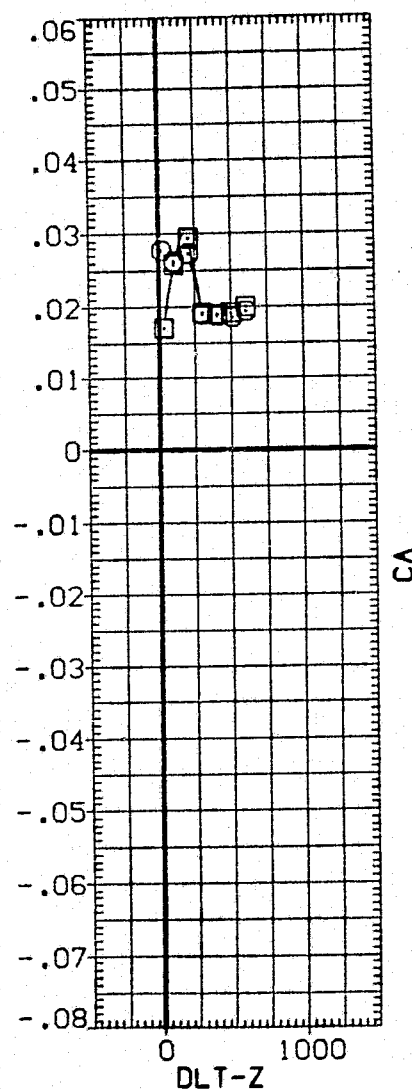
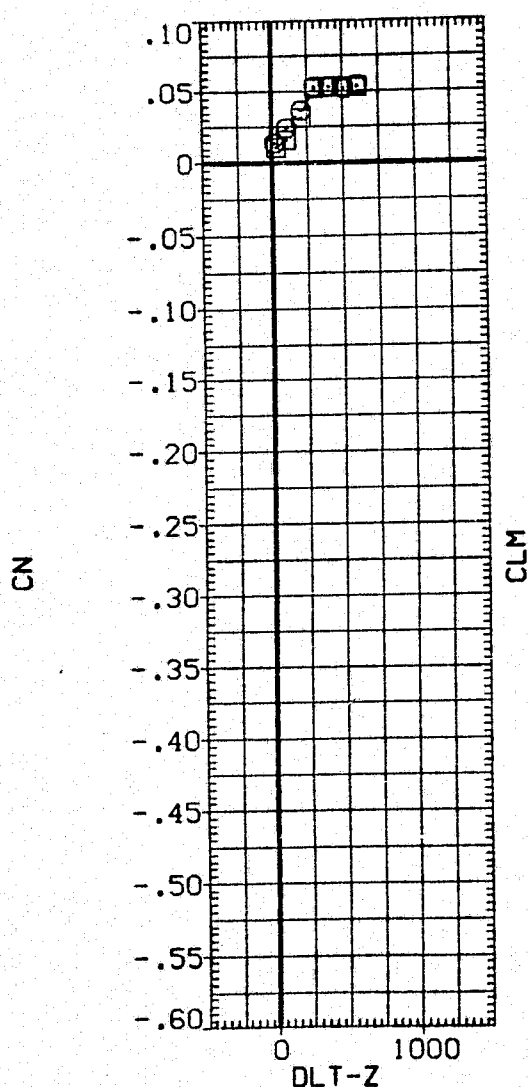


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR223)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.576	60.000	ALPHA	5.000
□	200.560	.000	DLTALF	.000
		3.000	MACH	5.930
		.000	ELEVON	.000
		5.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

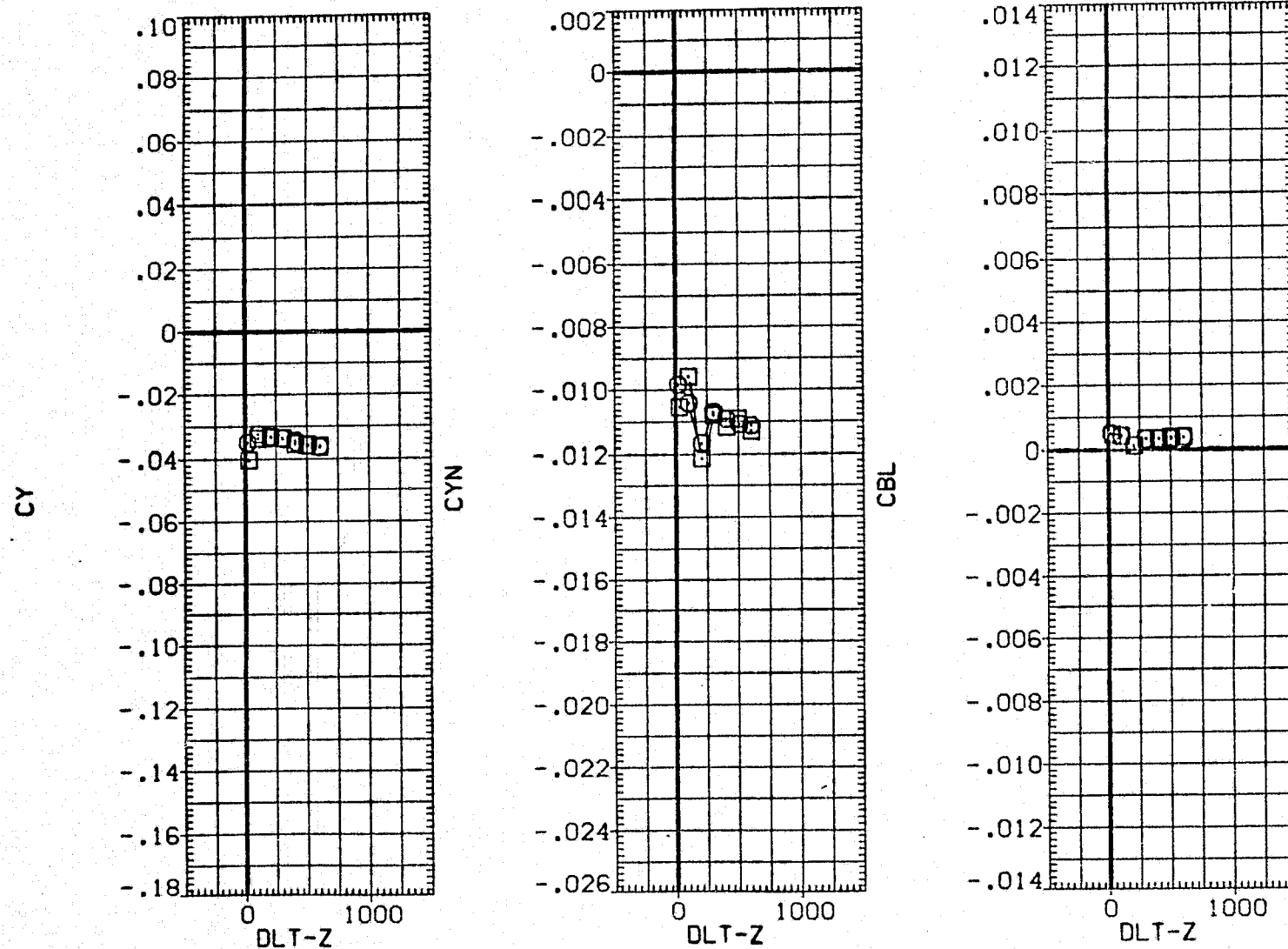
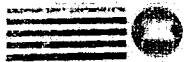


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)



AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR224)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-Y	BETA	DLTBT	AILRON	GRID
○	.508	60.000	ALPHA	5.000	
□	200.560	.000	DLTALF	-10.000	
◇	400.430	3.000	MACH	5.930	
		.000	ELEVON	.000	
		5.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

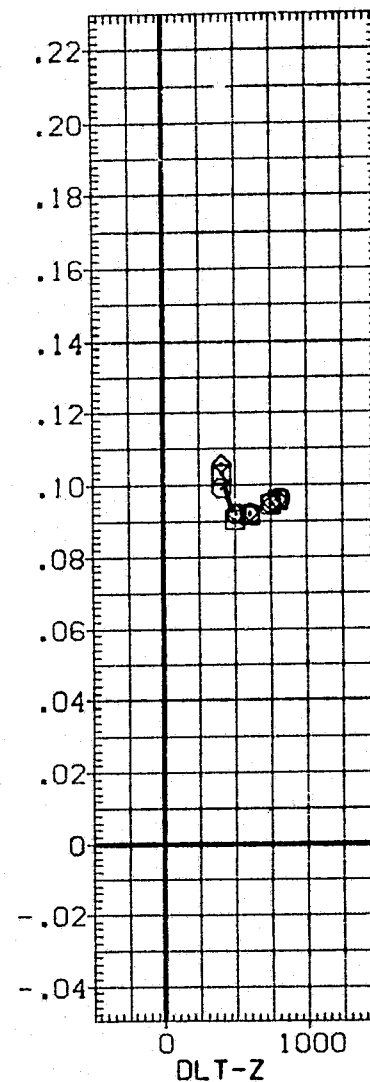
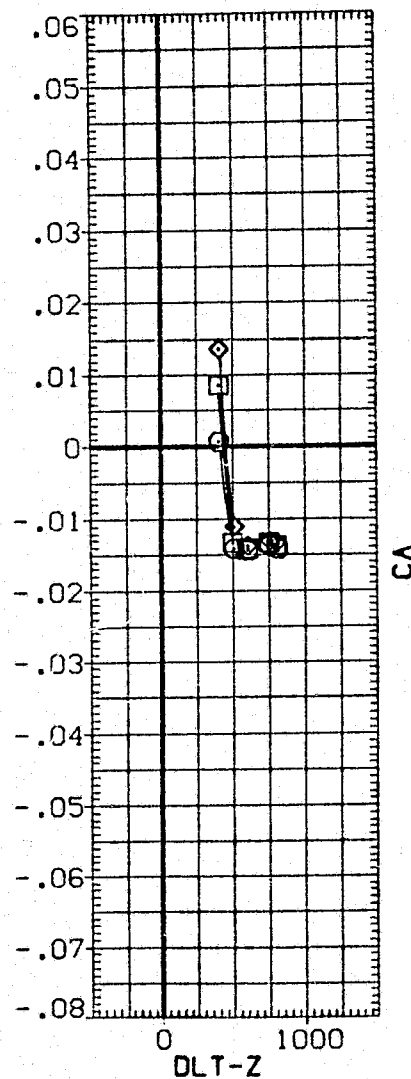
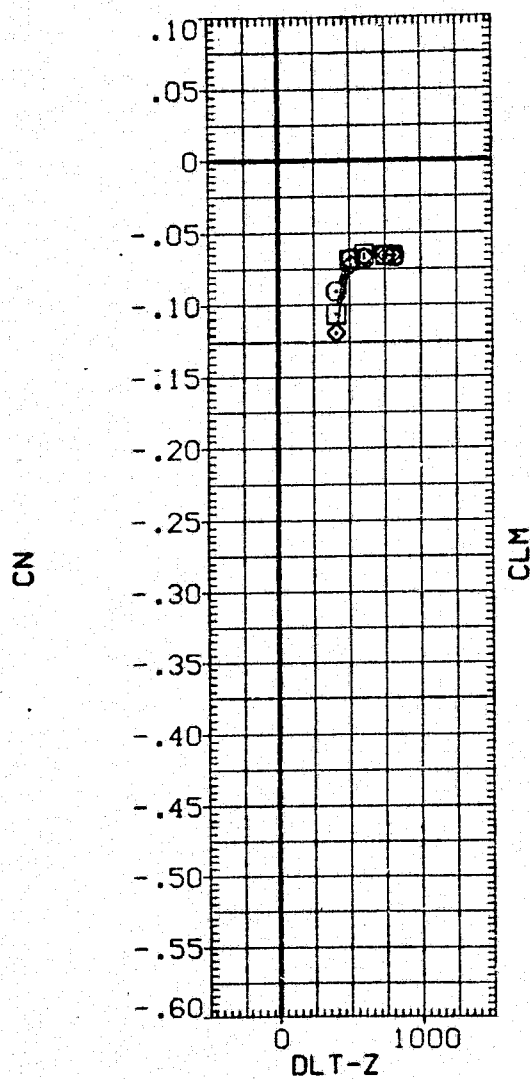


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR224)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
	.508	60.000	ALPHA	5.000
□	200.560	BETA	.000	DLTALF -10.000
◇	400.430	DLTBTA	3.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	5.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

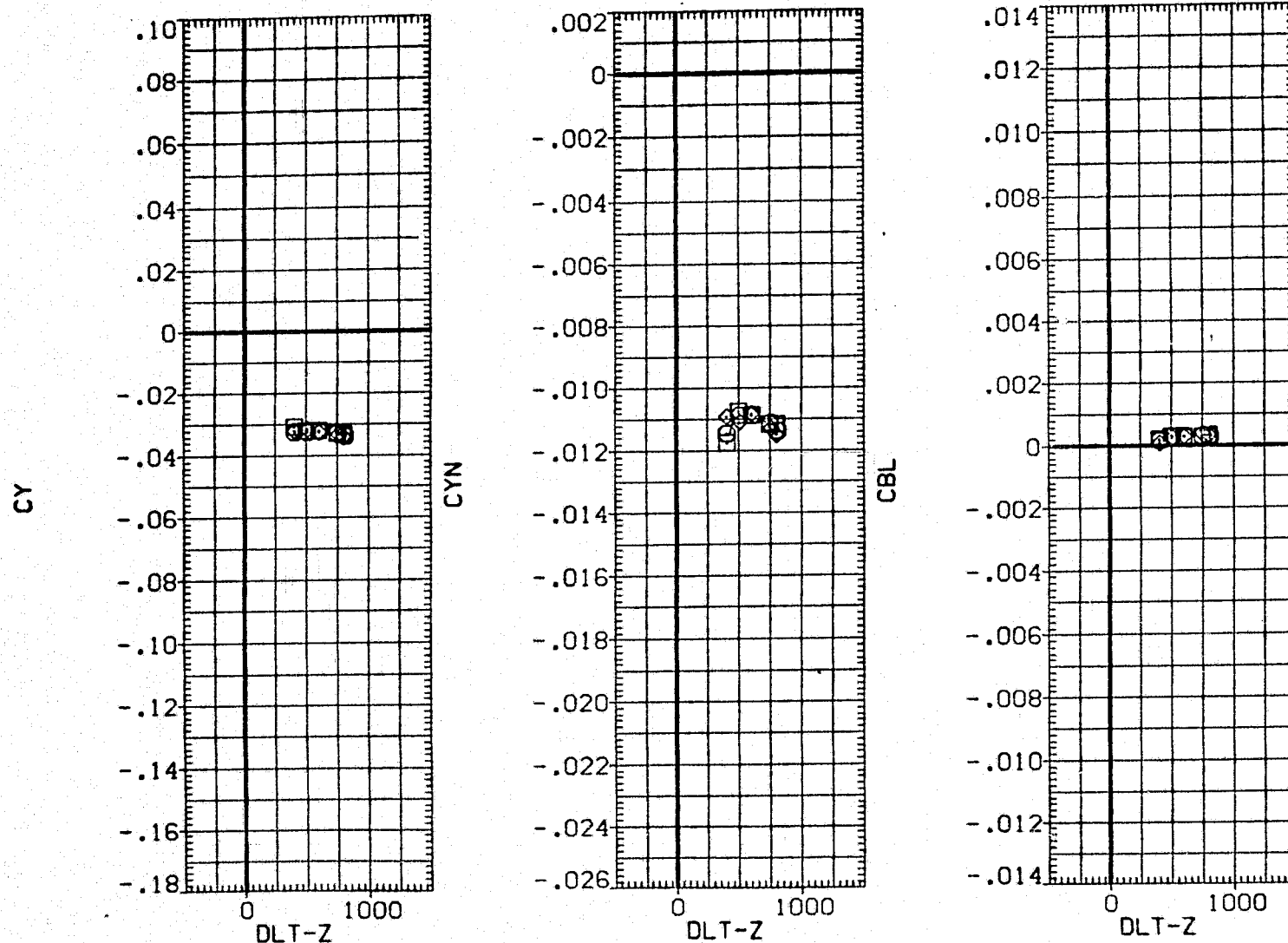


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR22E)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.436		60.000	ALPHA 5.000
□	200.440	BETA	.000	DLTALF -20.000
◇	400.440	DLTBTA	3.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	5.000	

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

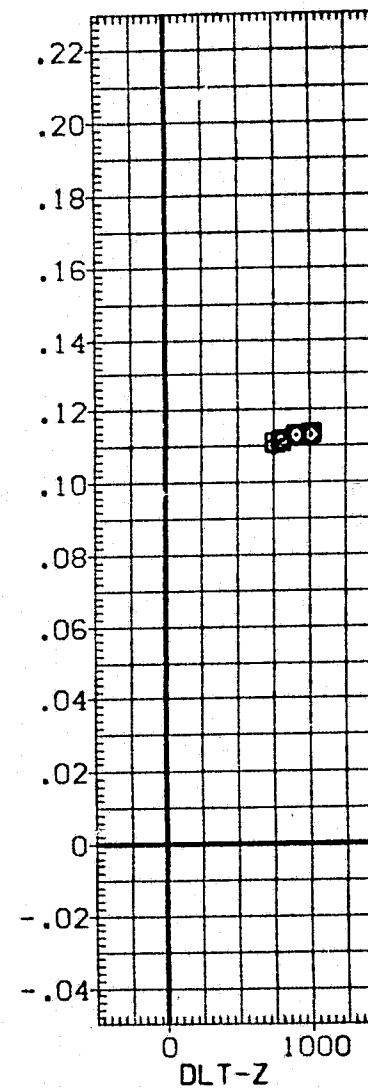
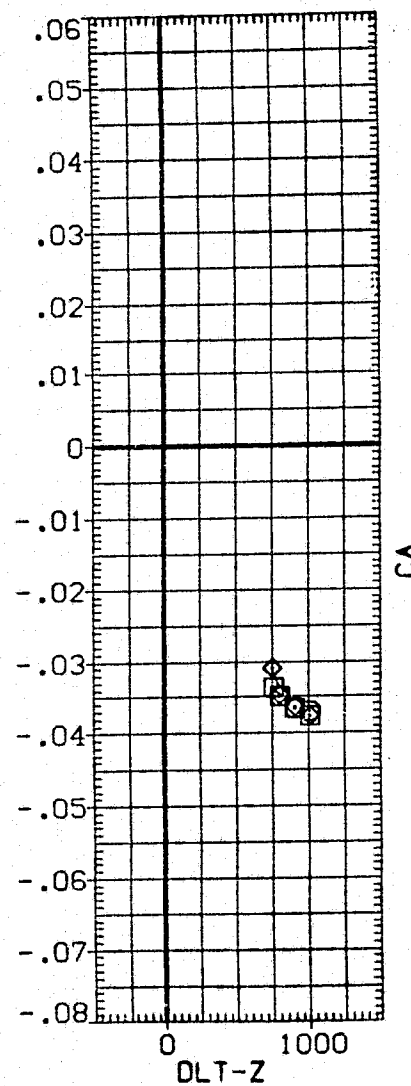
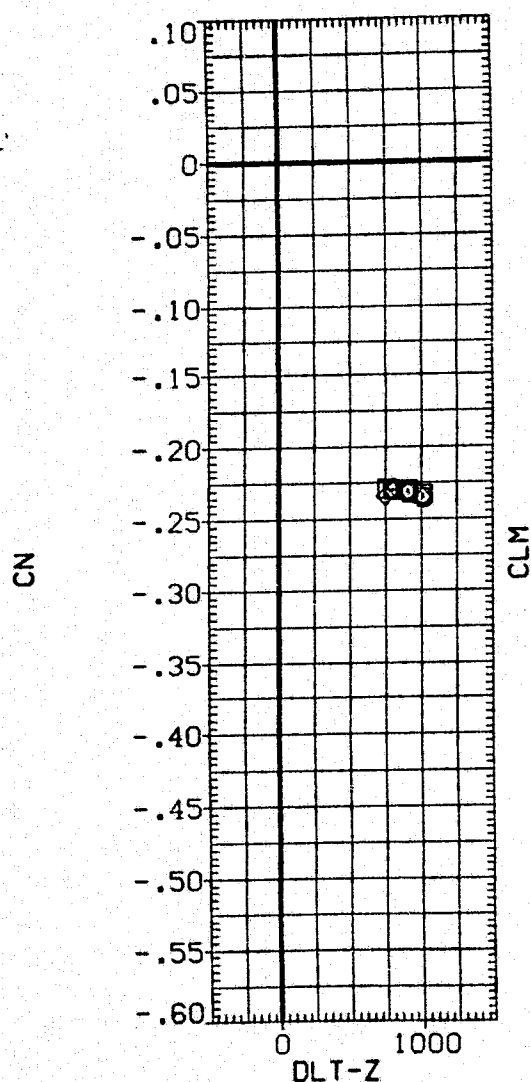


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR226)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.436	60.000	ALPHA	5.000
□	200.440	.000	DLTALF	-20.000
◇	400.440	3.000	MACH	5.930
		.000	ELEVON	.000
		5.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

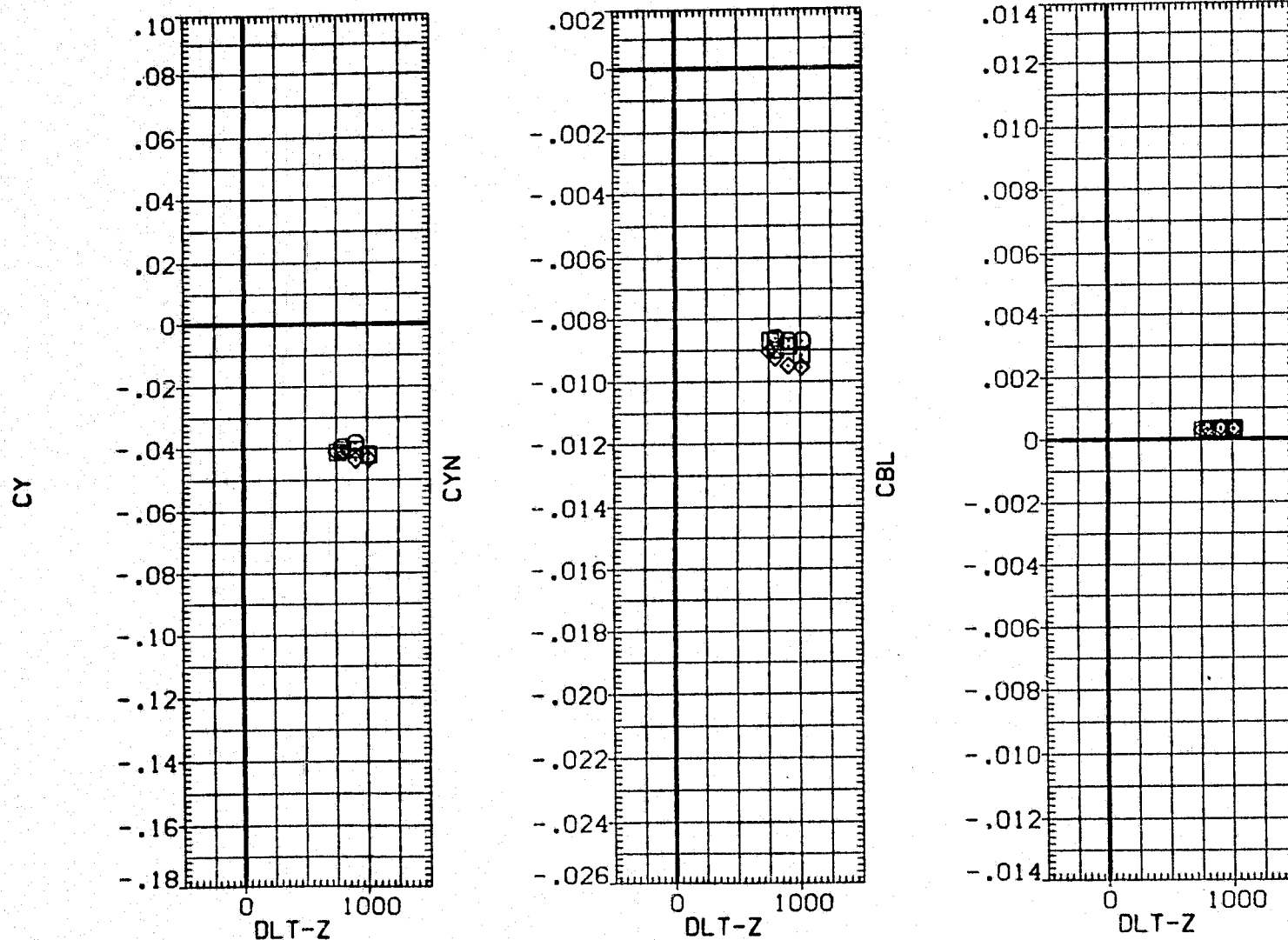


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR227)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.673	BETA	60.000	ALPHA
□	200.530	DLTBT	3.000	DLTALF
		AILRON	.000	MACH
		GRID	.000	ELEVON
			4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

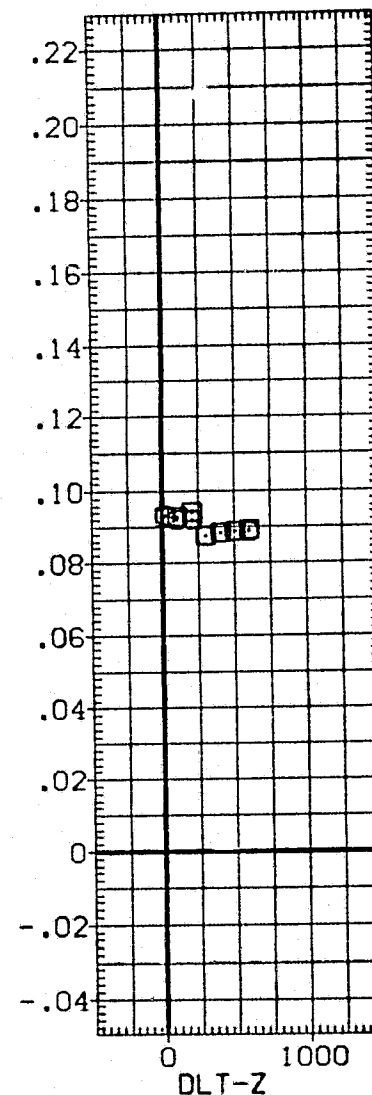
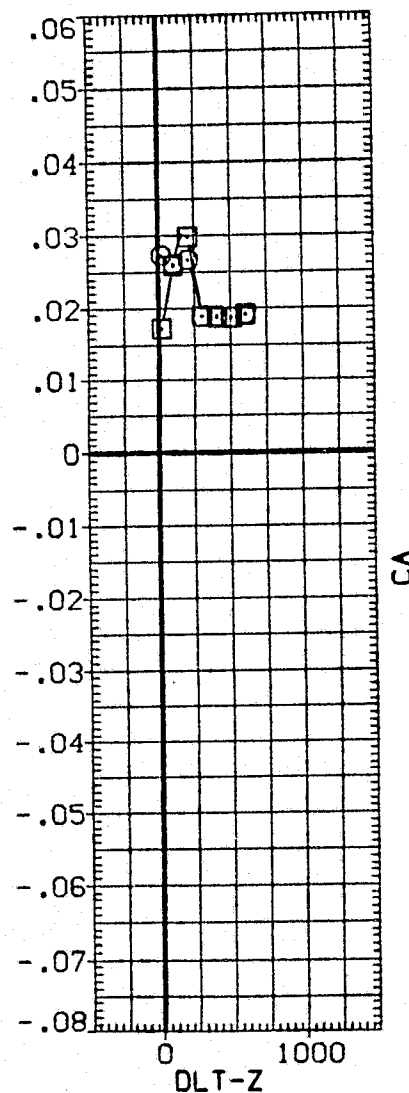
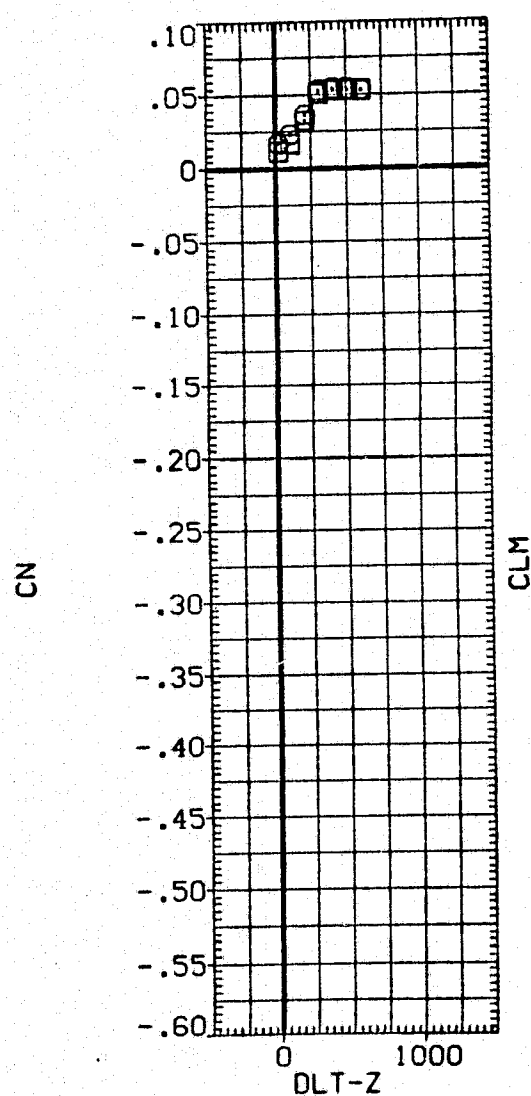


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR227)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.673	BETA	60.000	ALPHA
□	200.530	DLTBTA	3.000	DLTALF
		AIRLON	.000	MACH
		GRID	.000	ELEVON
			4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

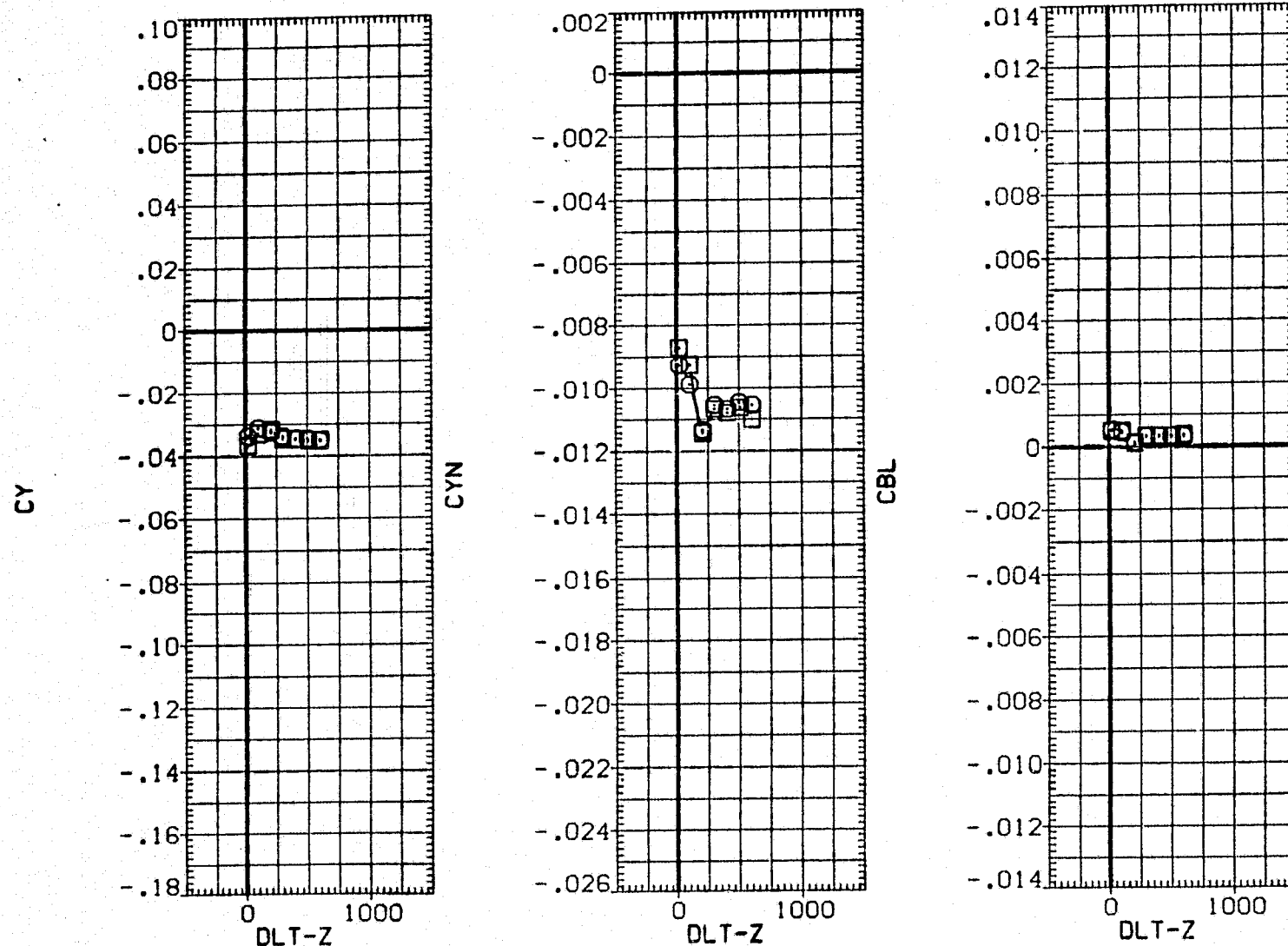


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB. AND ET SEPARATING(ET DATA) (ATR228)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.666	BETA	60.000	ALPHA
□	200.500	DLTBT	3.000	DLTALF
◇	400.570	AILRON	.000	MACH
		GRID	.000	ELEVON
			4.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

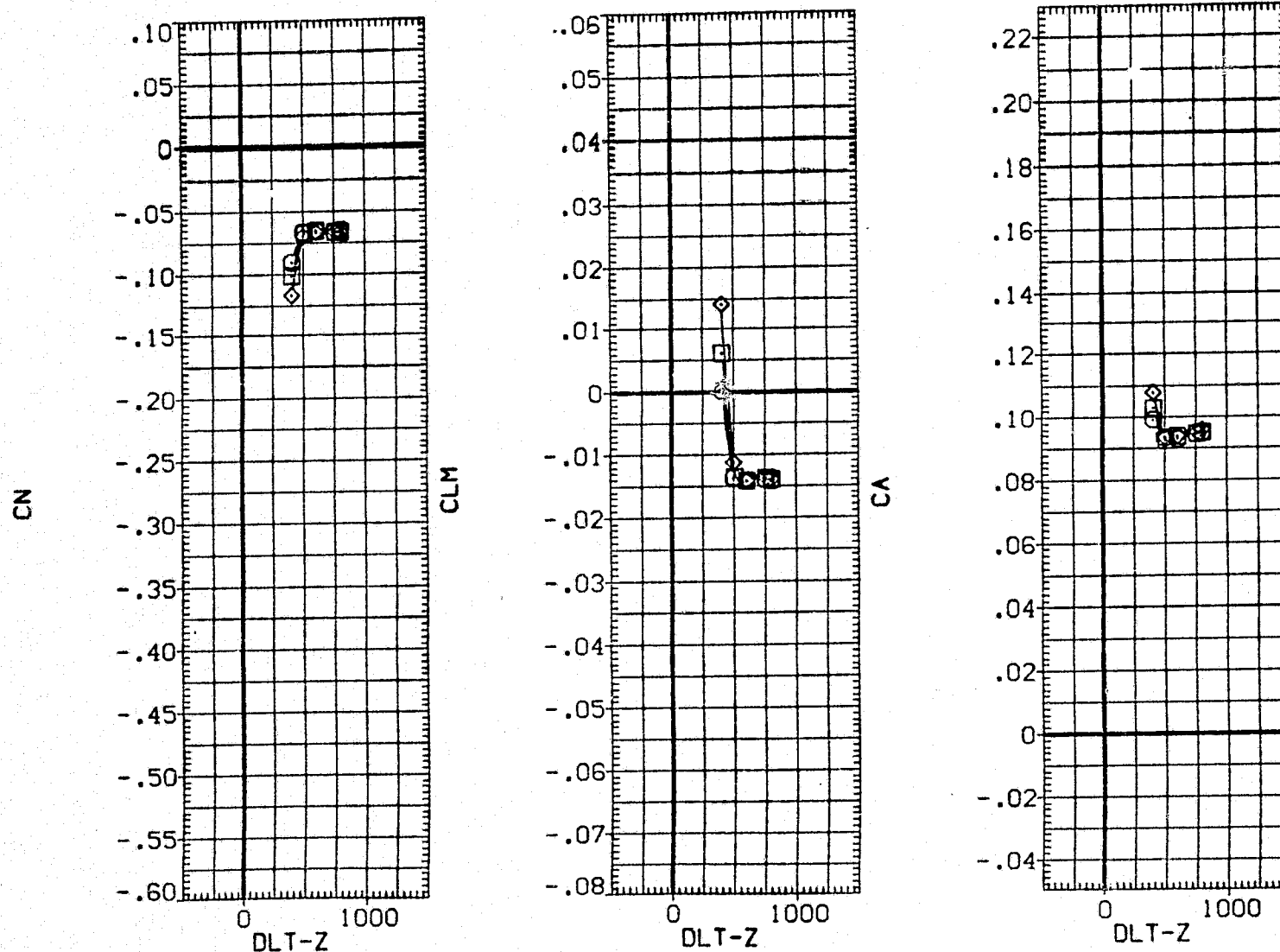


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR228)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.666	60.000	BETA	3.000	DLTALF
□	200.500	.000	DLTBT	.000	MACH
◇	400.570	.000	AILRON	.000	ELEVON
		GRID	4.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

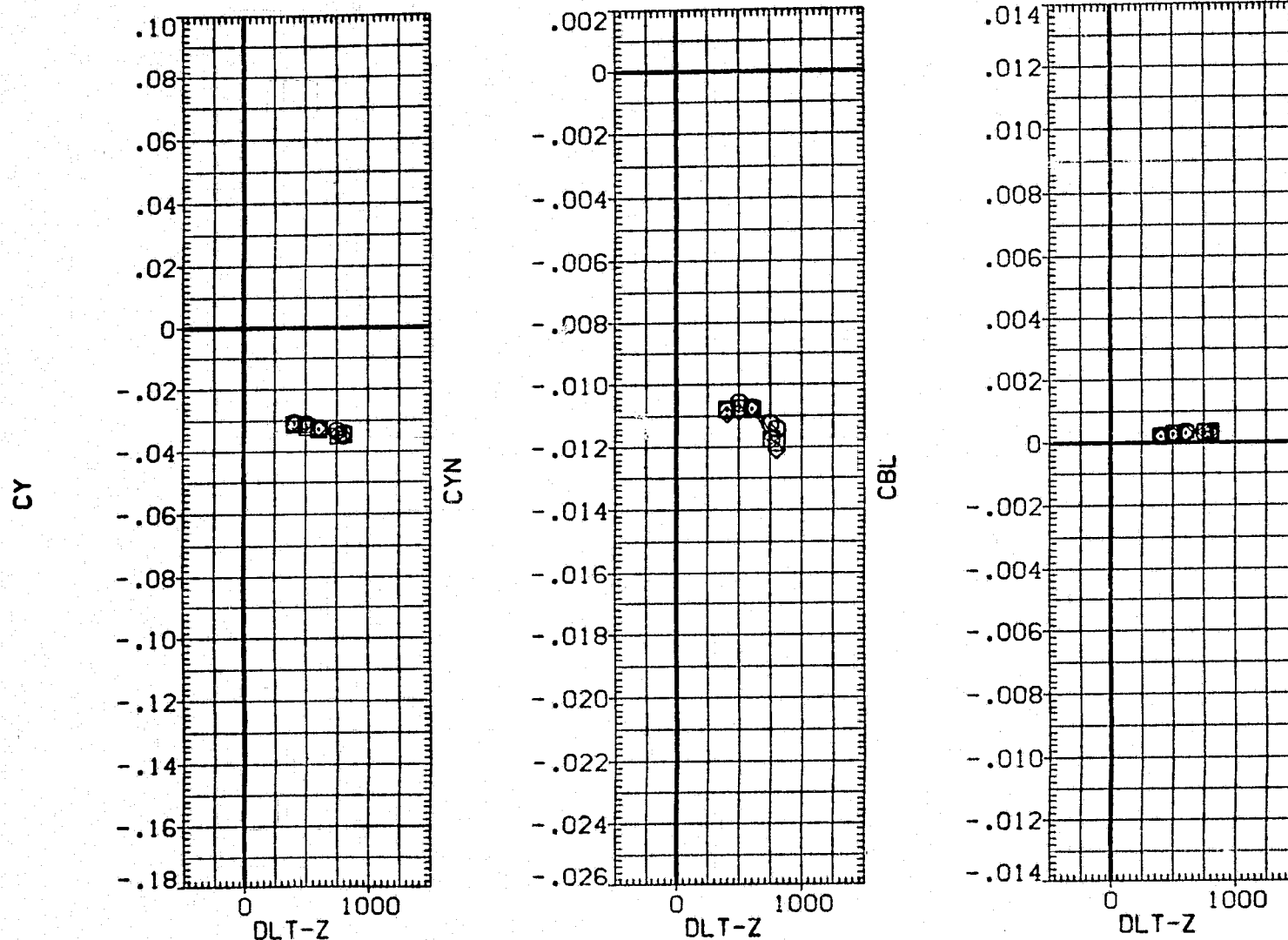


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR230)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	DLT-Y	BETA	DLTBT	ATLRON	GRID
○	.556	60.000	.000	.000	4.000
□	200.620	3.000	.000	.000	
◇	400.480	3.000	.000	.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

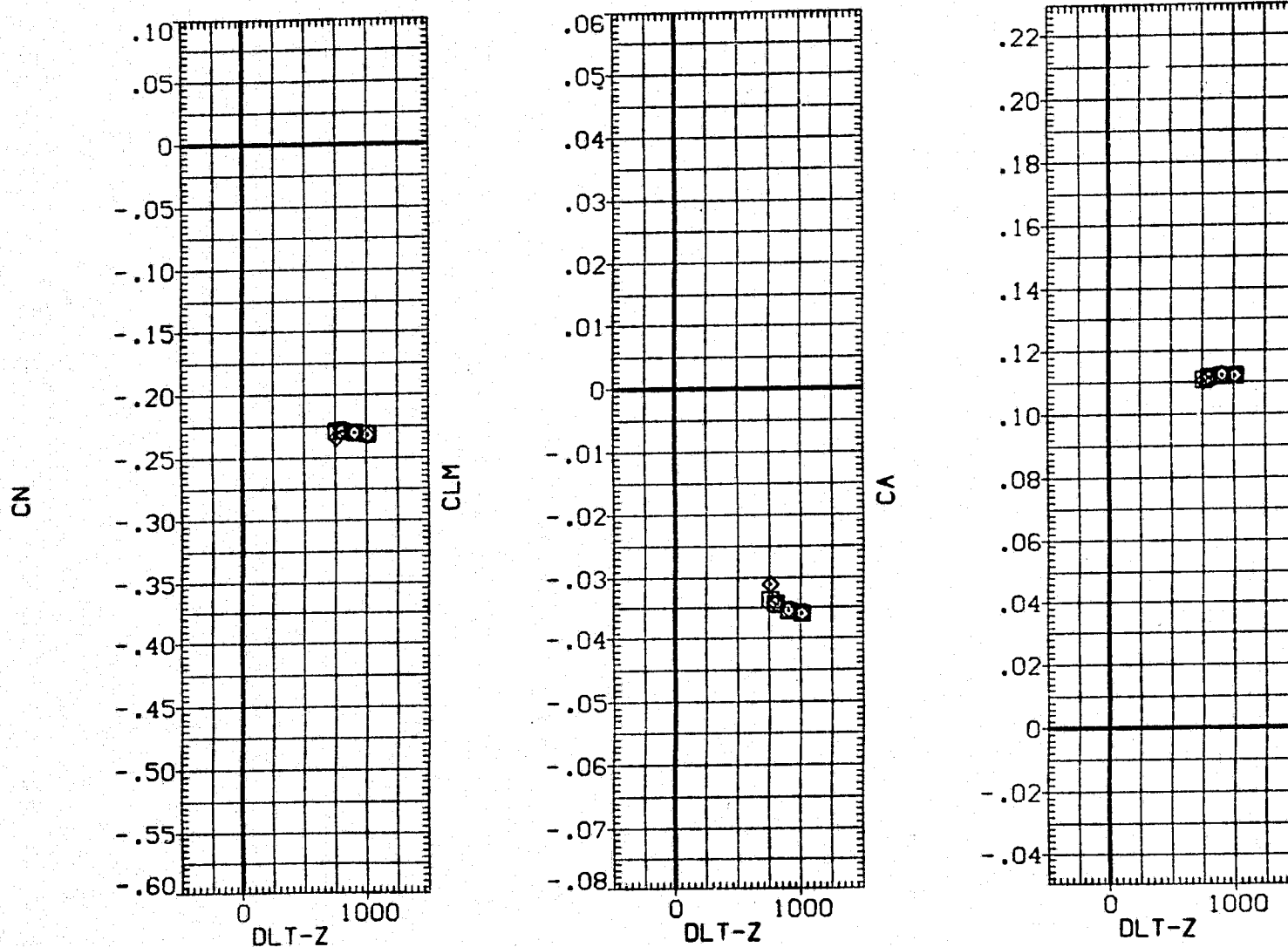


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR230)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
◇	.556	60.000	3.000	5.000	
□	200.620	BETA	3.000	DLTALF	-20.000
◇	400.480	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	4.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

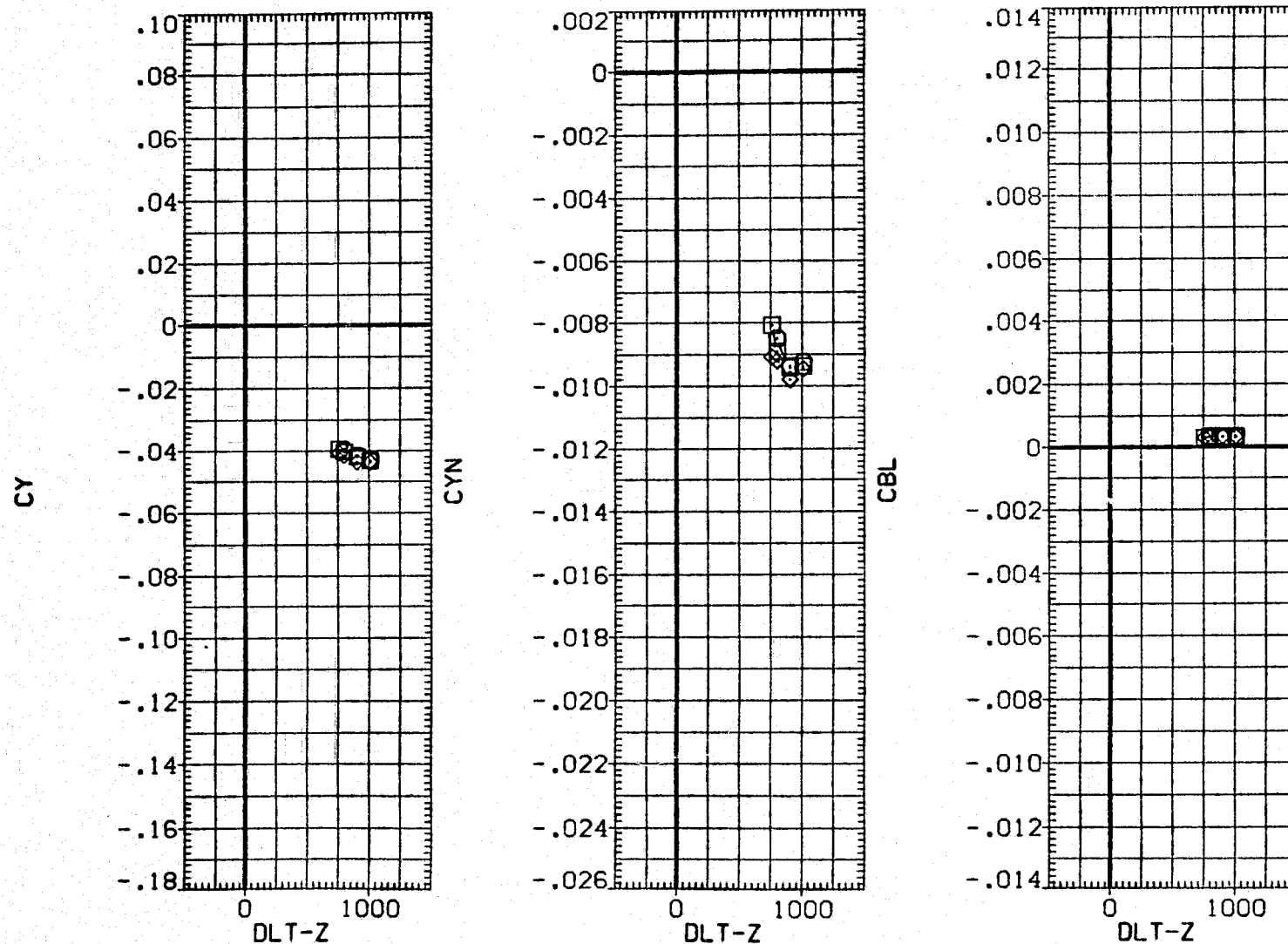


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR231)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	BETA	DLT-TA	AILRON	GRID	
○	.660	60.000	3.000	.000	4.000	ALPHA
□	200.700	3.000	.000	.000		DLTALF
						MACH
						ELEVON

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

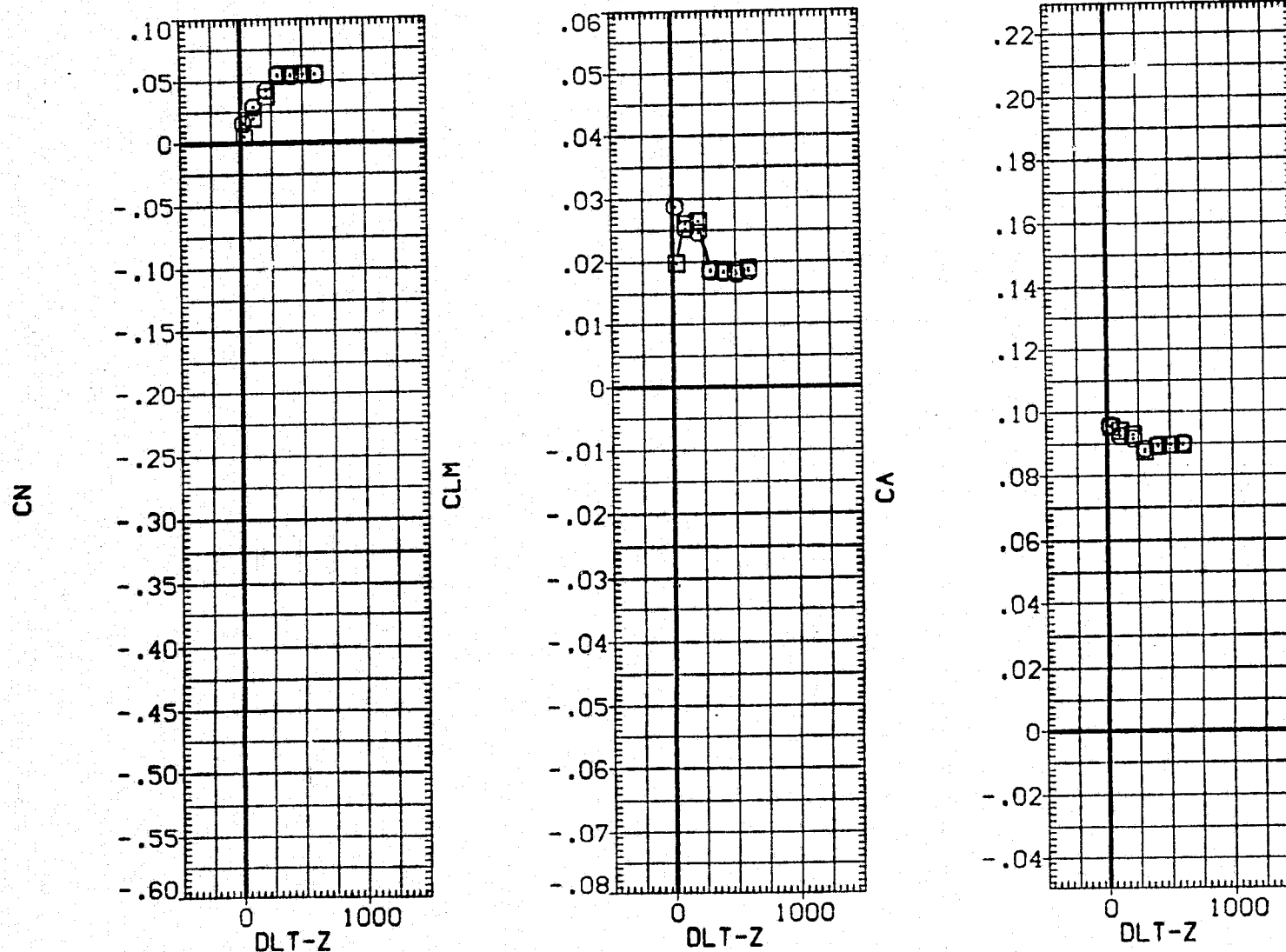


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR231)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.660		60.000	ALPHA	5.000
□	200.700	BETA	3.000	DLTALF	.000
		DLTBT A	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	4.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XM RP	1360.1000	IN. XT
YM RP	.0000	IN. YT
ZM RP	416.4000	IN. ZT
SCALE	.0100	

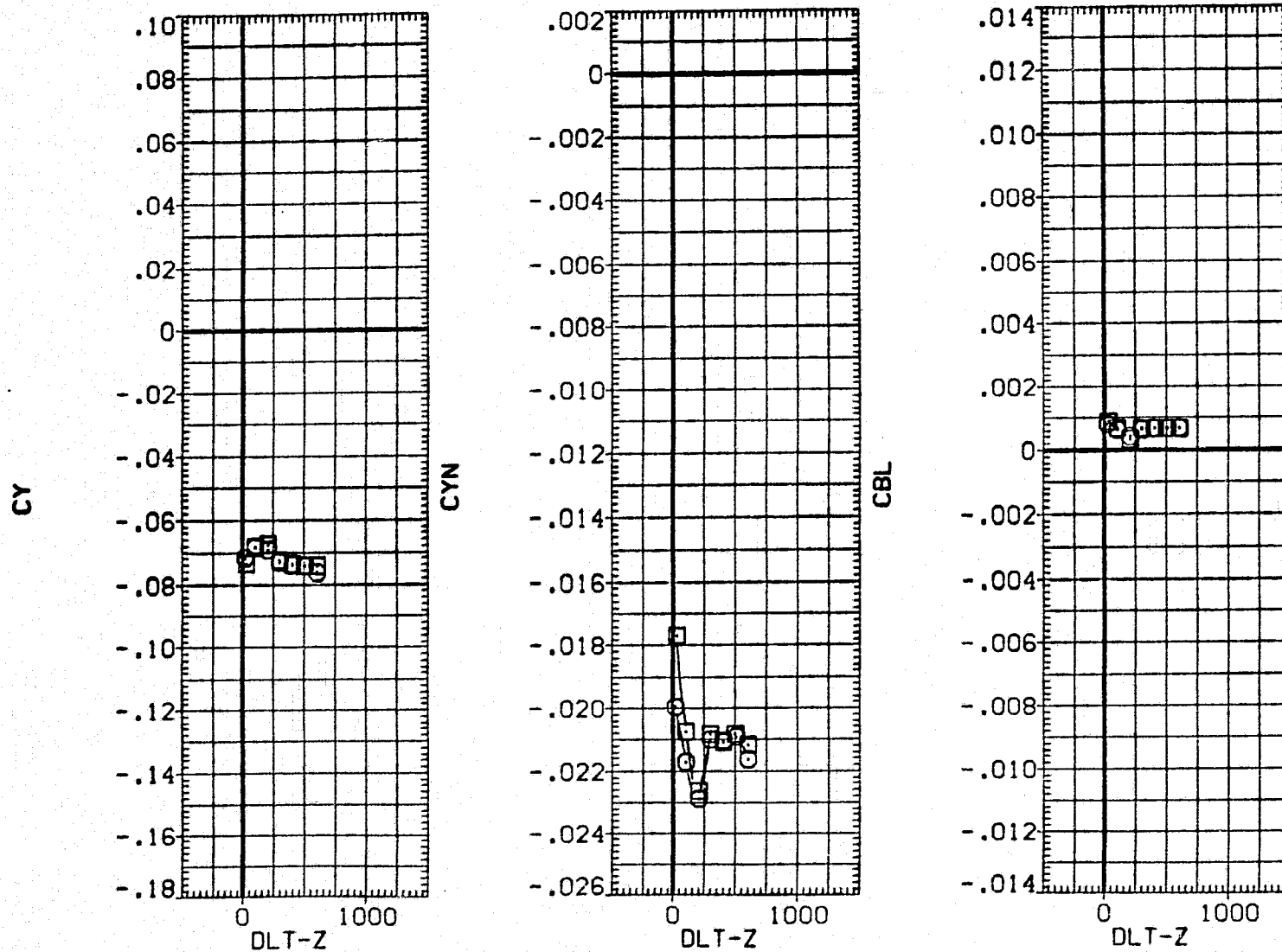


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR232)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.646	60.000	ALPHA	5.000
□	200.690	3.000	DLTALF	-10.000
◇	400.600	3.000	MACH	5.930
		.000	ELEVON	.000
		4.000	GRID	

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. Y1
ZMRP	416.4000	IN. Z1
SCALE	.0100	

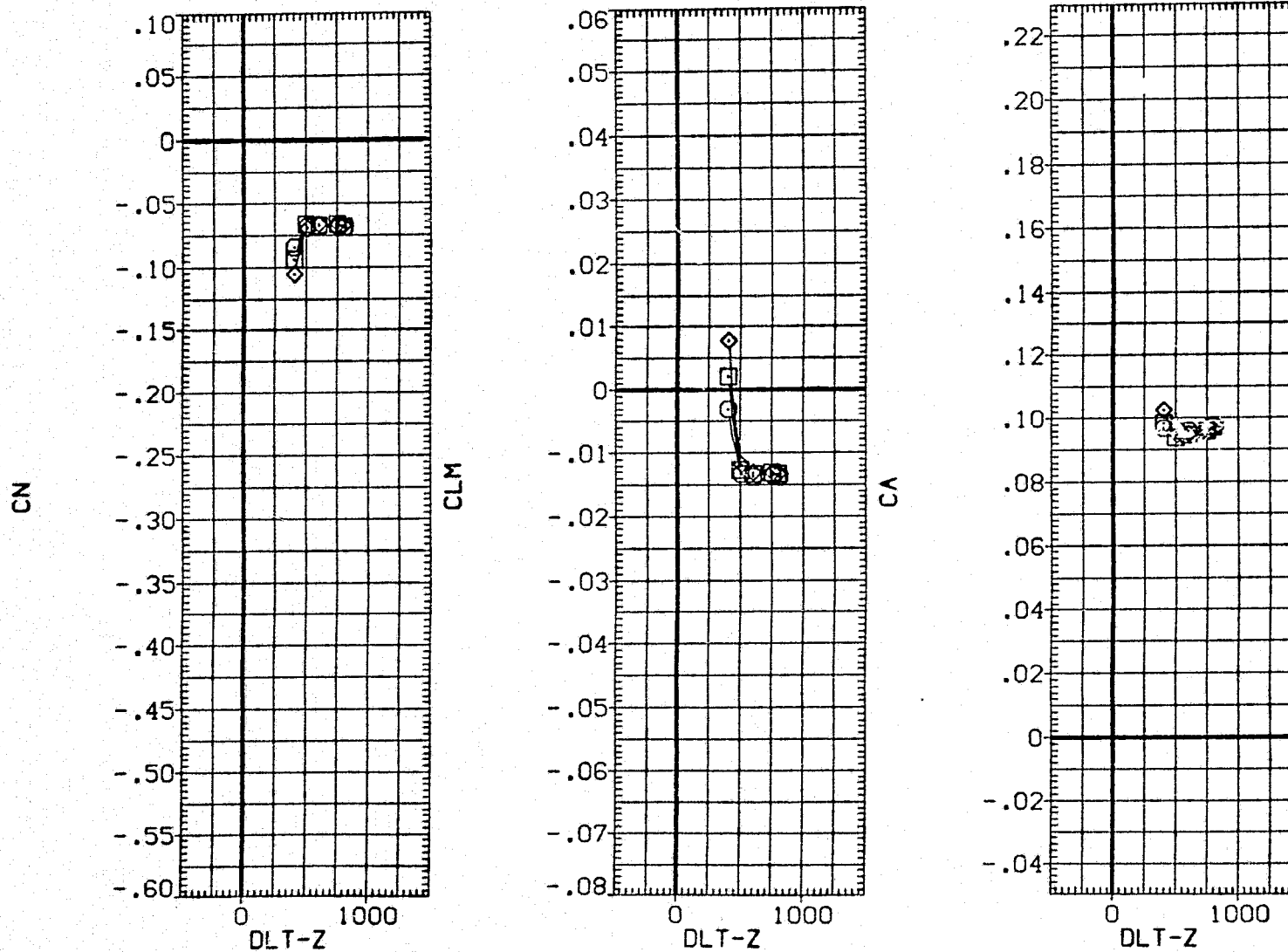


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR232)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	ALPHA	5.000
□	.646	BETA	60.000	DLTALF
○	200.690	DLTBT	3.000	5.930
◇	400.600	AILRON	.000	ELEVON
		GRID	4.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

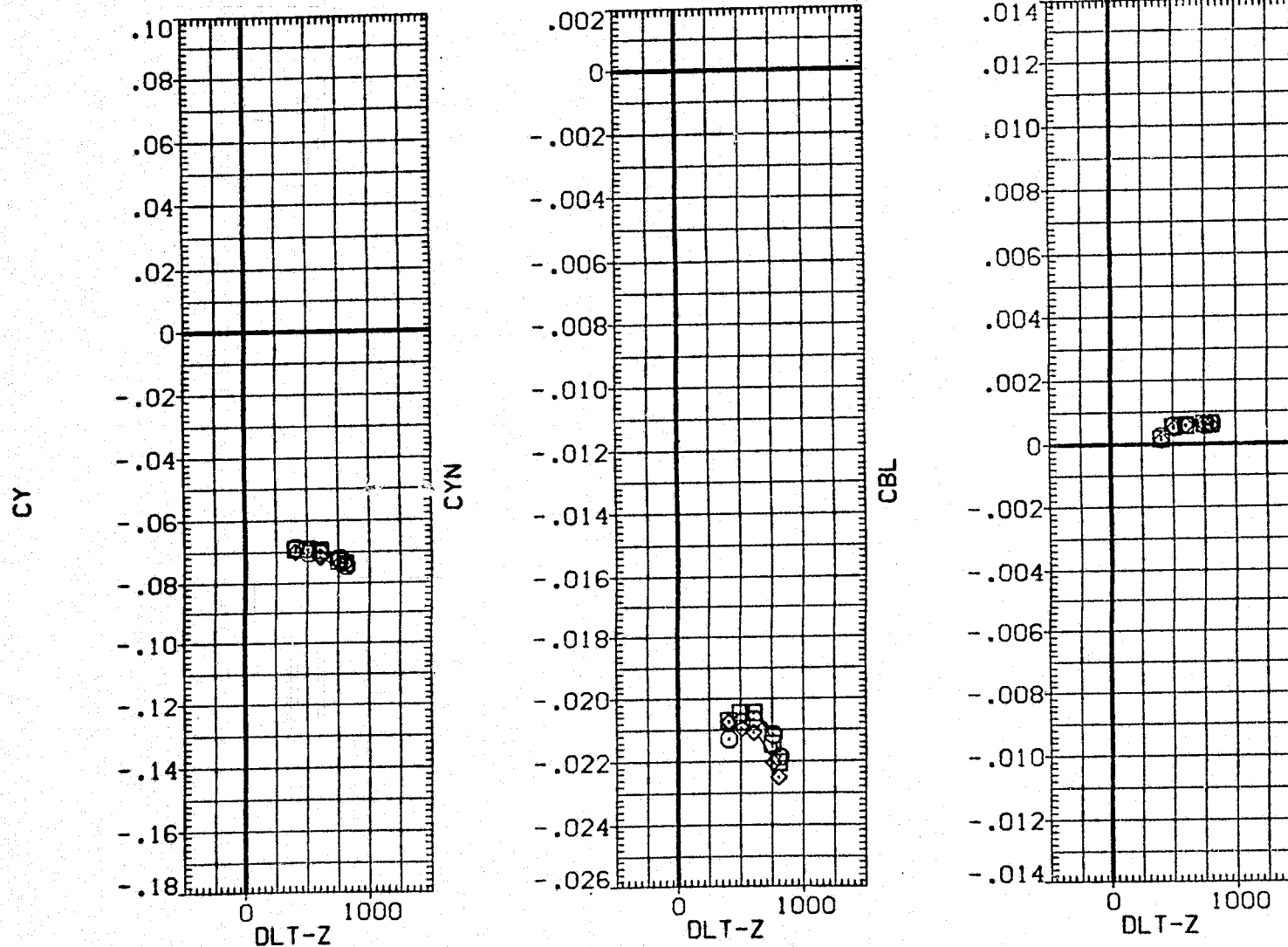


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR234)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH
○	.644	60.000	5.000	-20.000	5.930
□	200.680	3.000	.000	.000	.000
◇	400.560	3.000	.000	.000	.000
	DLTBT	GRID			
	4.000				

REFERENCE INFORMATION

SREF	2690.0000	50, FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

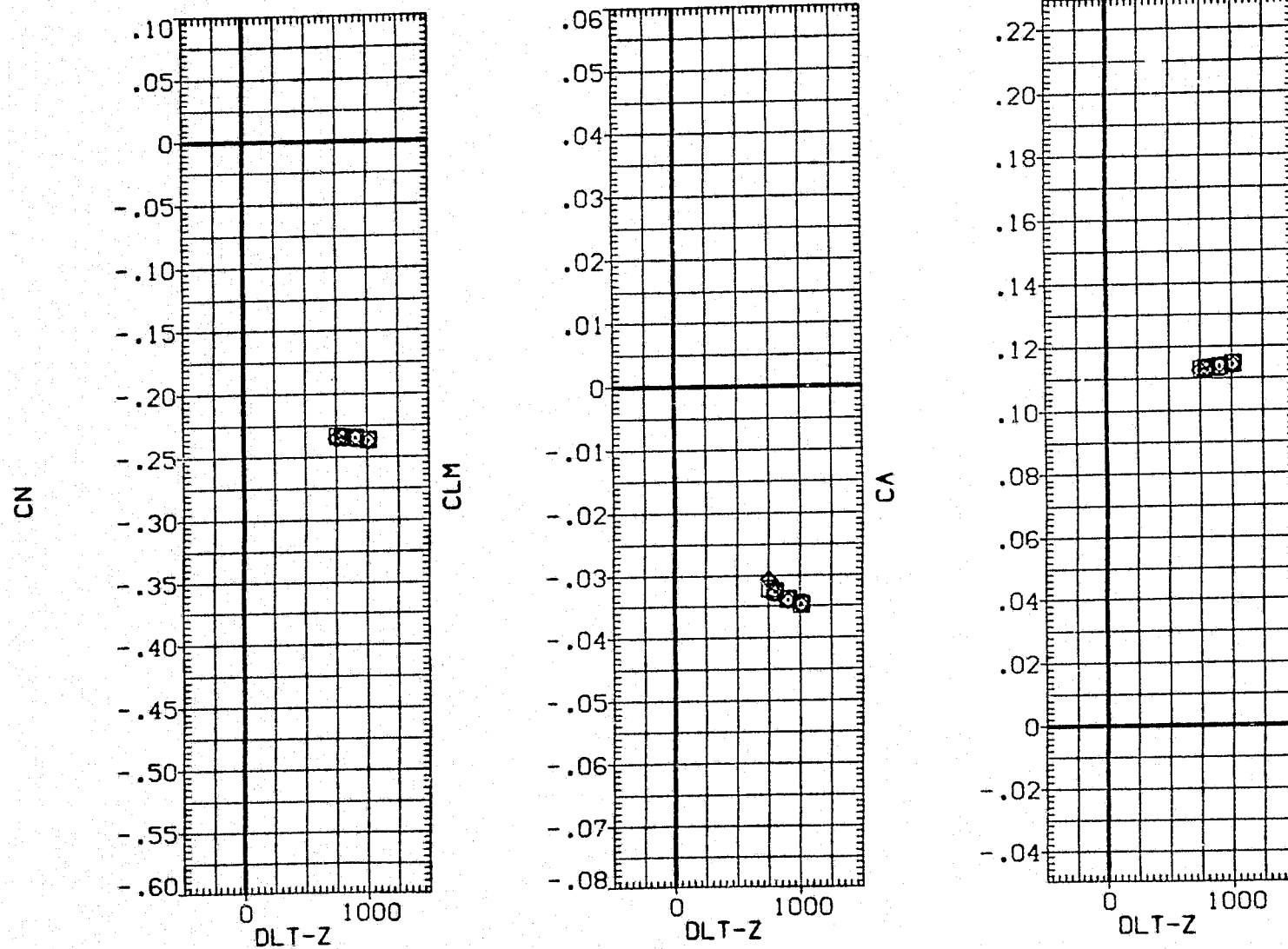


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR234)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.644	BETA	60.000	DLTALF	-20.000
□	200.680	DLTBTA	3.000	MACH	5.930
◇	400.560	AILRON	.000	ELEVON	.000
		GRID	4.000		

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

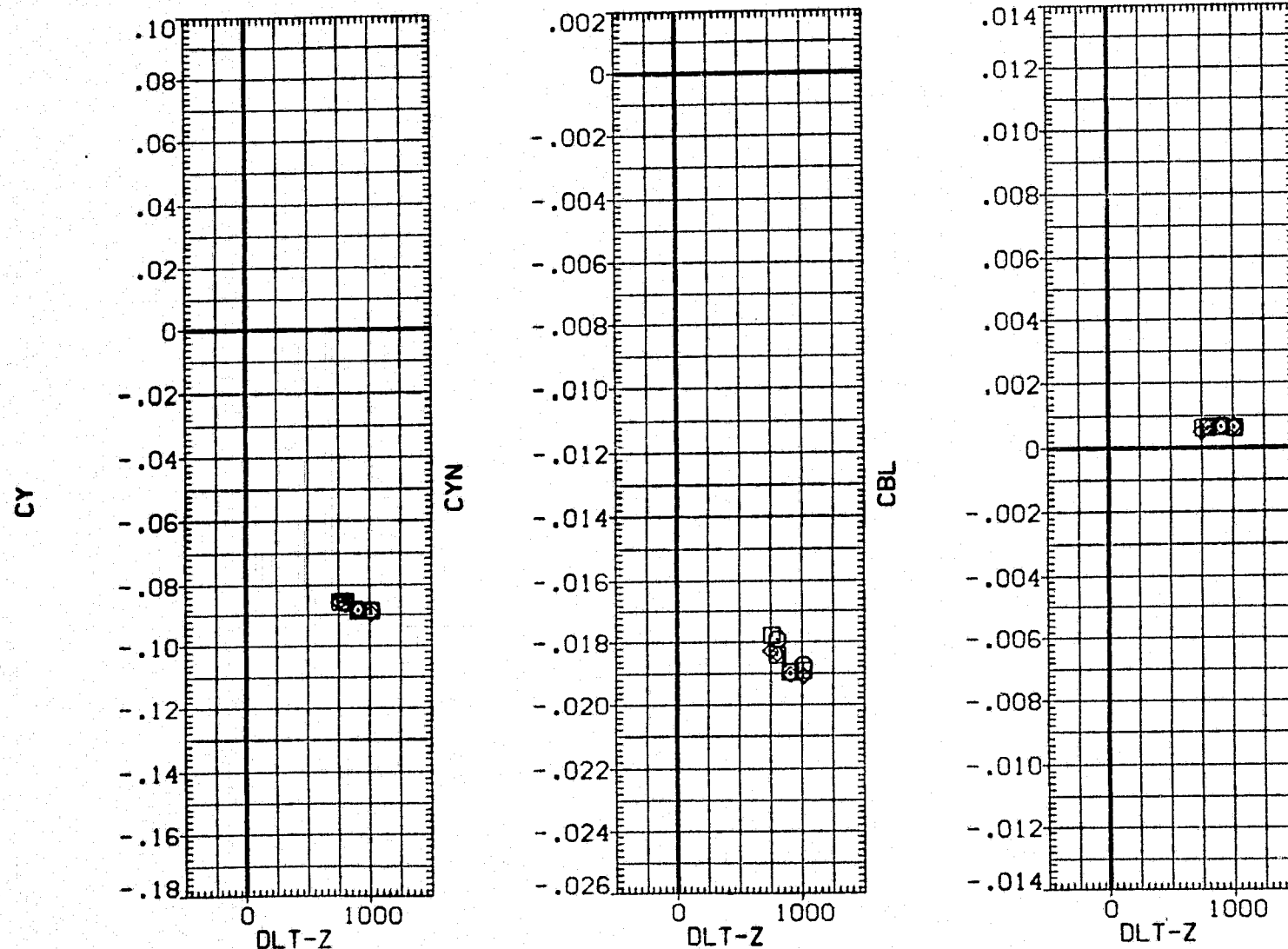


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR235)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.558	60.000	DLTALF	-5.000	
□	200.500	.000	MACH	.000	
◇	400.420	.000	ELEVON	5.930	
		AIRLON		.000	
		GRID	6.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRF	1360.1000 IN. XT
YMRF	.0000 IN. YT
ZMRF	416.4000 IN. ZT
SCALE	.0100

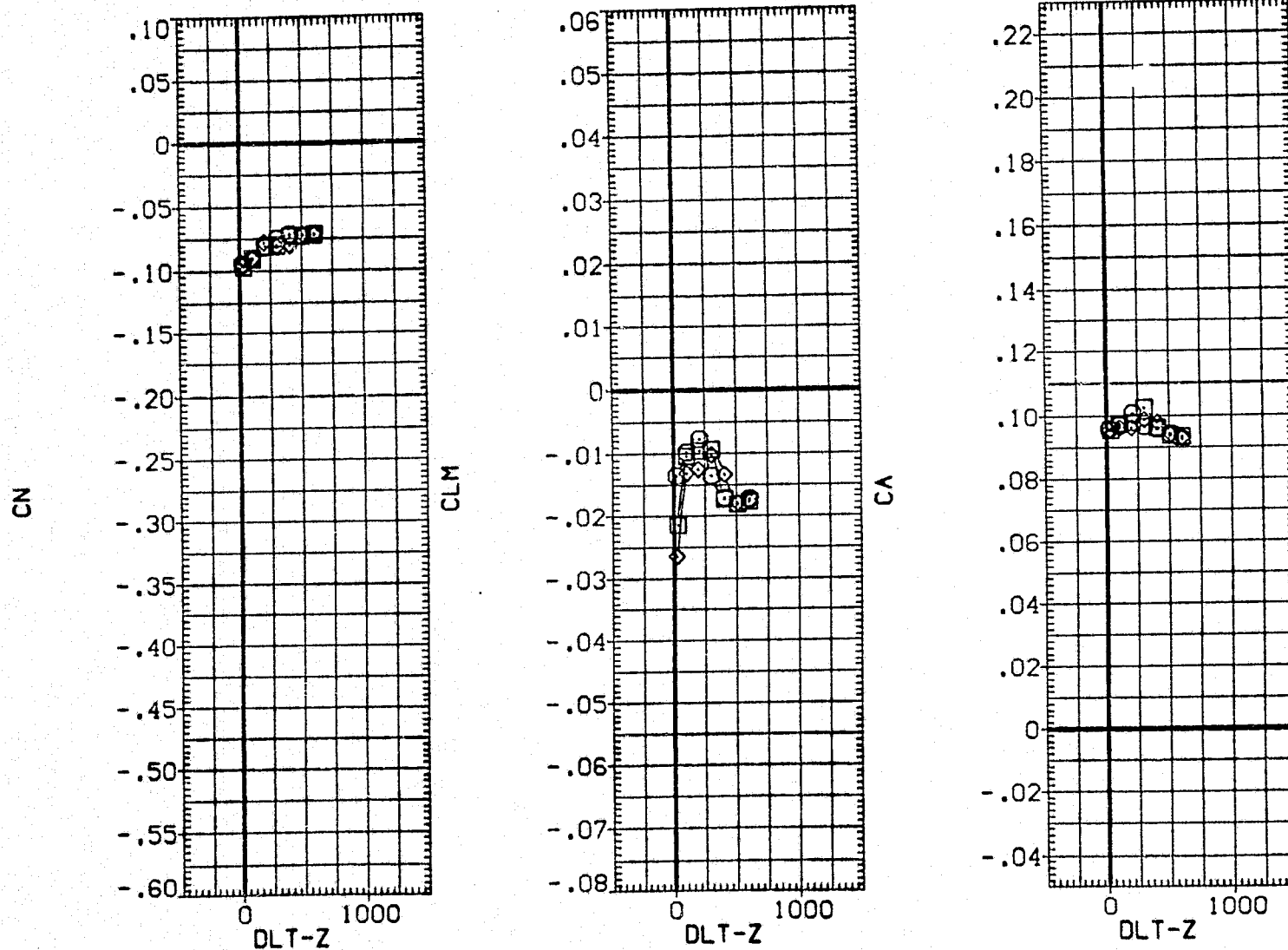


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR235)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.558	60.000	ALPHA	-5.000	
	200.500	BETA	.000	DLTALF	.000
	400.420	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	6.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

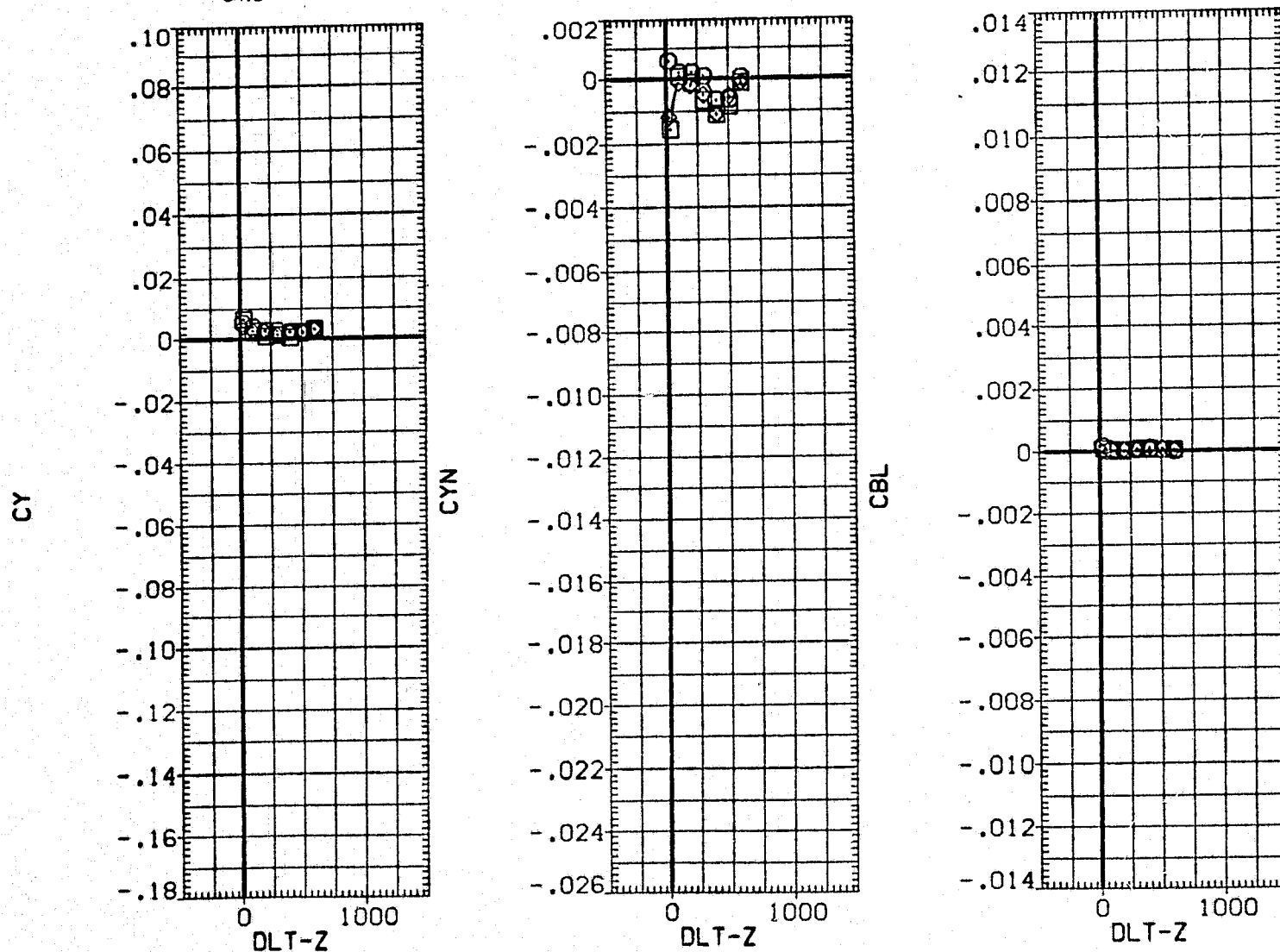


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR236)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLT-X	DLT-Y
○	.404	BETA	.000	DLTALF	-5.000	-10.000
□	200.500	DLTBT	.000	MACH	5.930	.000
◇	400.340	AILRON	.000	ELEVON	.000	.000
		GRID	6.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

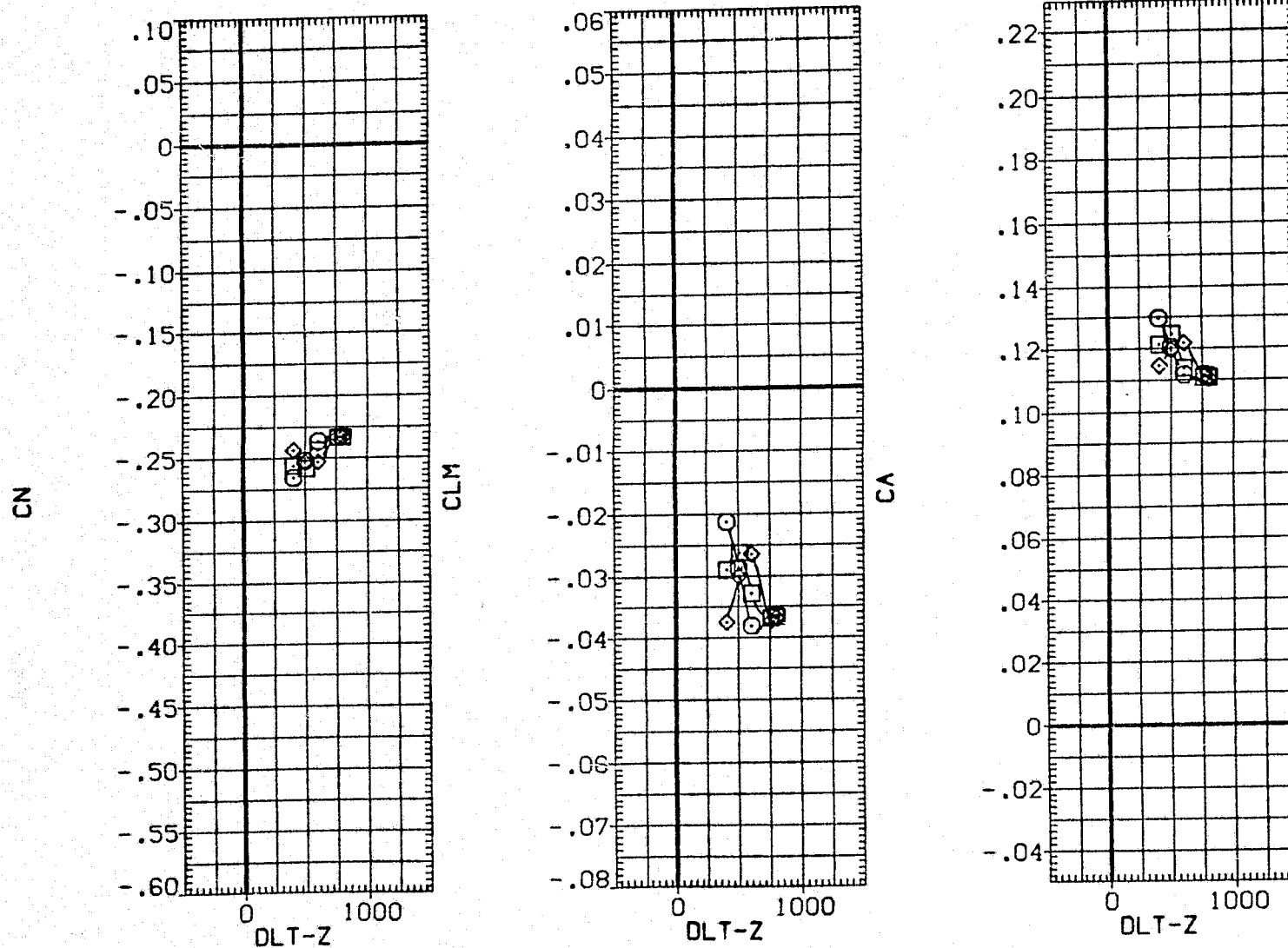


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR236)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-X	DLT-Y	60.000	ALPHA	-5.000
○	200.500	BETA	.000	DLTALF	-10.000
□	400.340	DLTATA	.000	MACH	5.930
◇		A:LRON	.000	ELEVON	.000
		GR:D	6.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

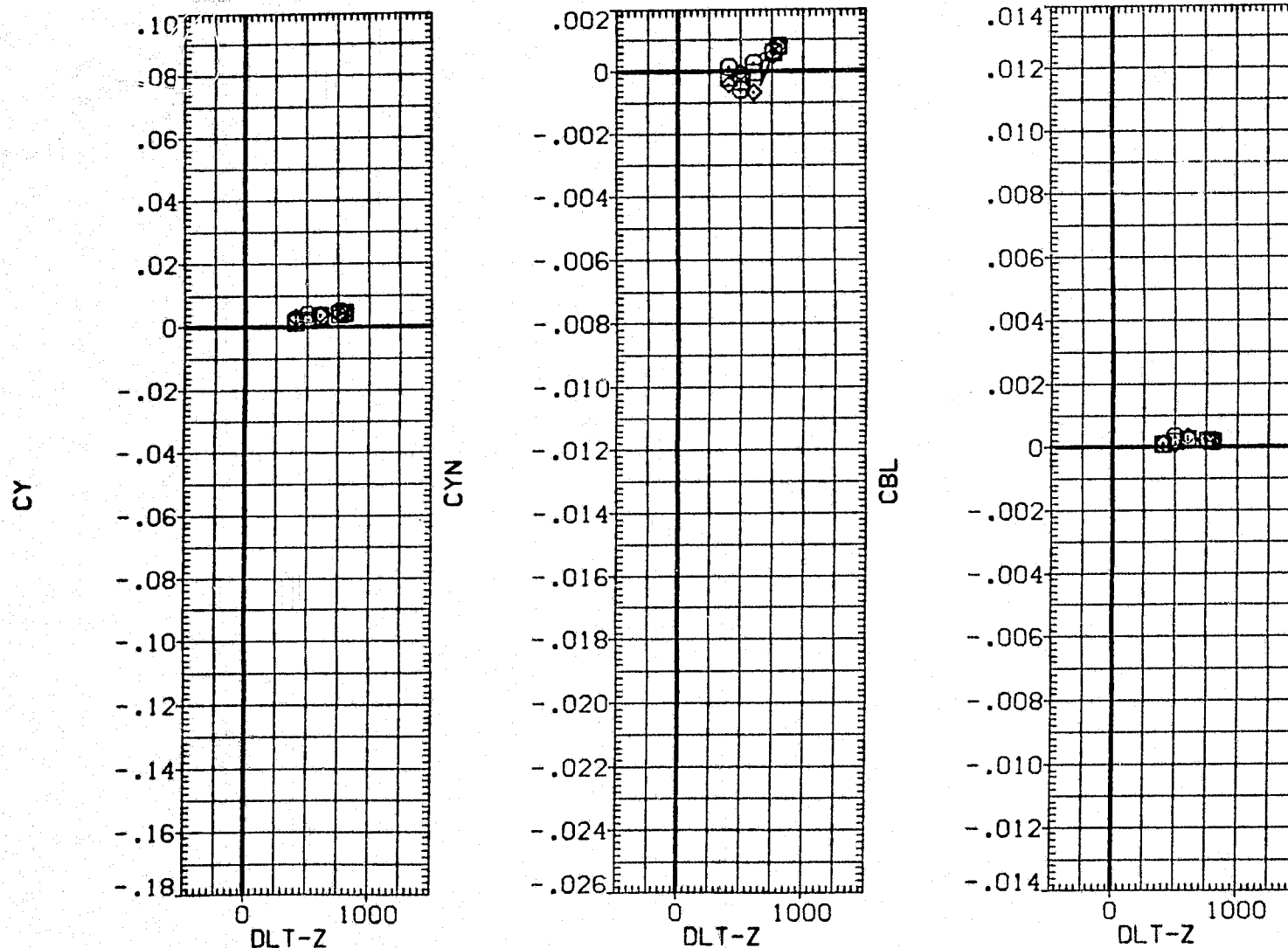


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR238)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	60.000	ALPHA	-5.000	
○	.453	BETA	.000	DLTALF	-20.000	
□	200.250	DLTBT	.000	MACH	5.930	
◇	400.410	AILRON	.000	ELEVON	.000	
		GRID	6.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

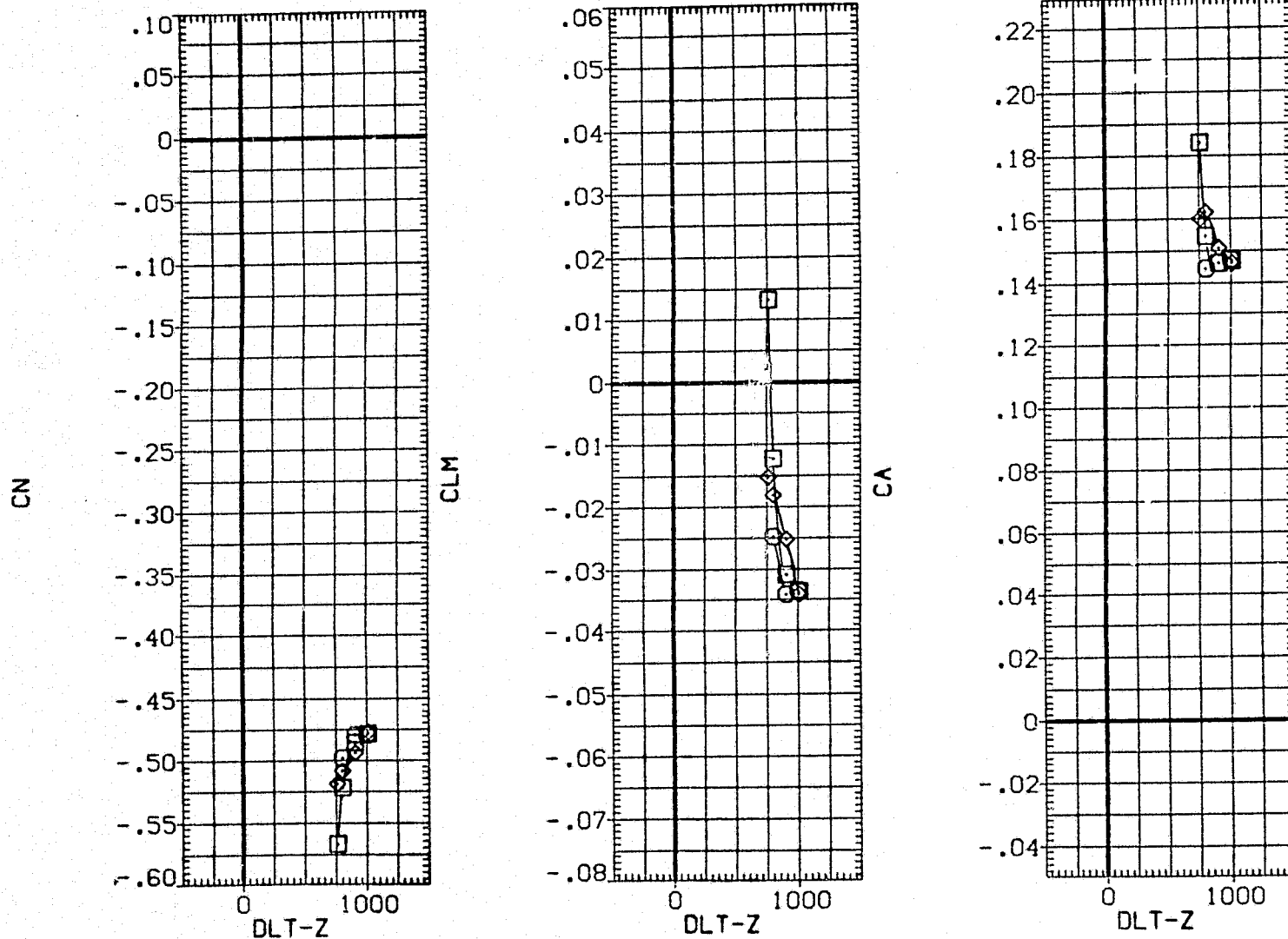


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR238)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.453	BETA	60.000	-5.000	
□	200.250	DLTBTA	.000	-20.000	
◇	400.410	AILRON	.000	5.930	
		GRID	6.000	ELEVON	.000

REFERENCE INFORMATION		
SREF	2690.0000	93.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

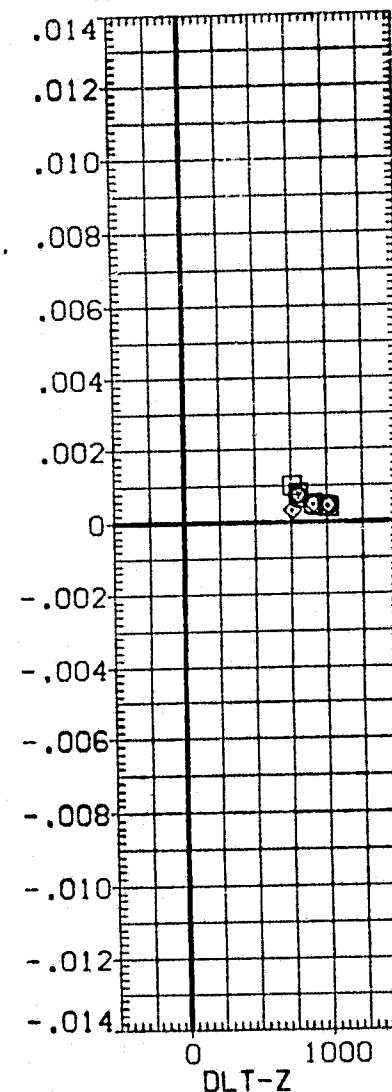
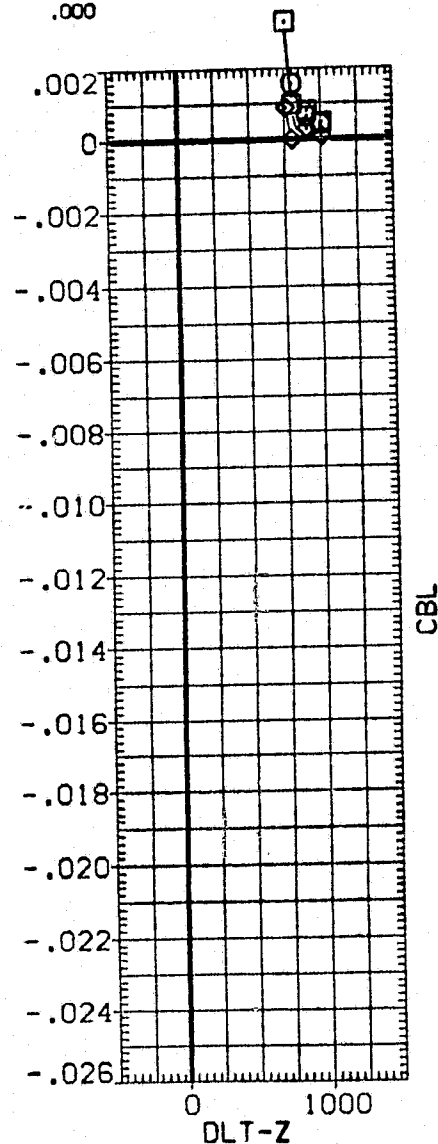
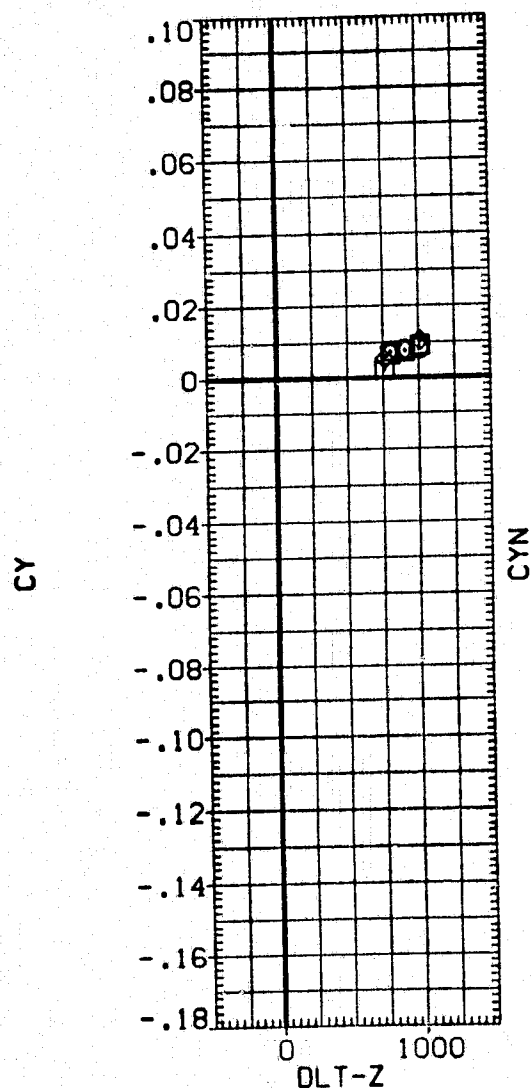


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR239)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.583	60.000	ALPHA	-5.000
□	200.420	.000	DLTALF	.000
		3.000	MACH	5.930
		.000	ELEVON	.000
		6.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

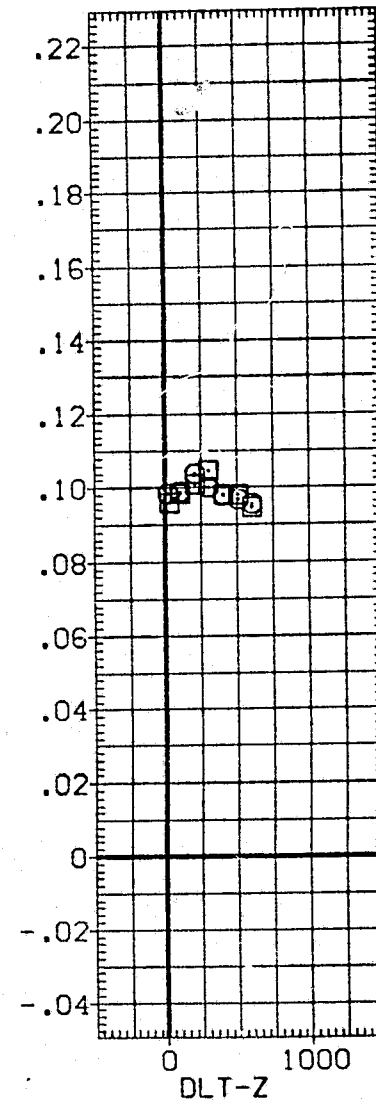
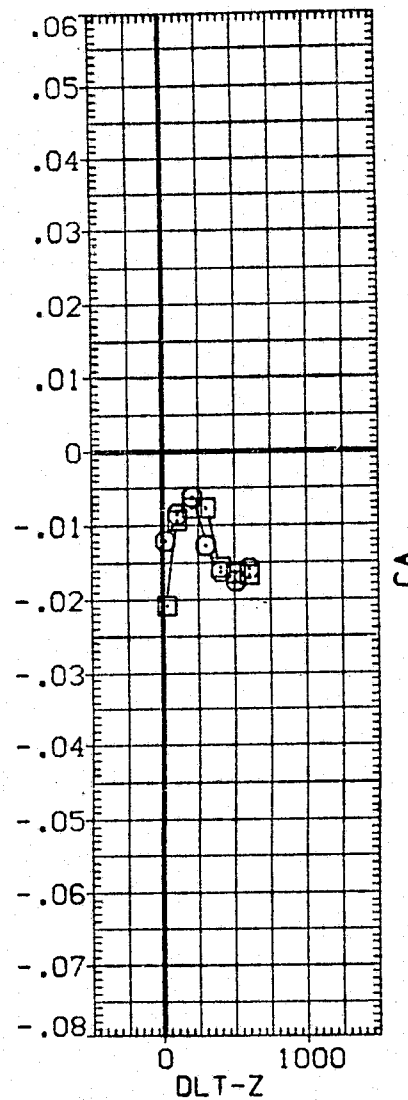
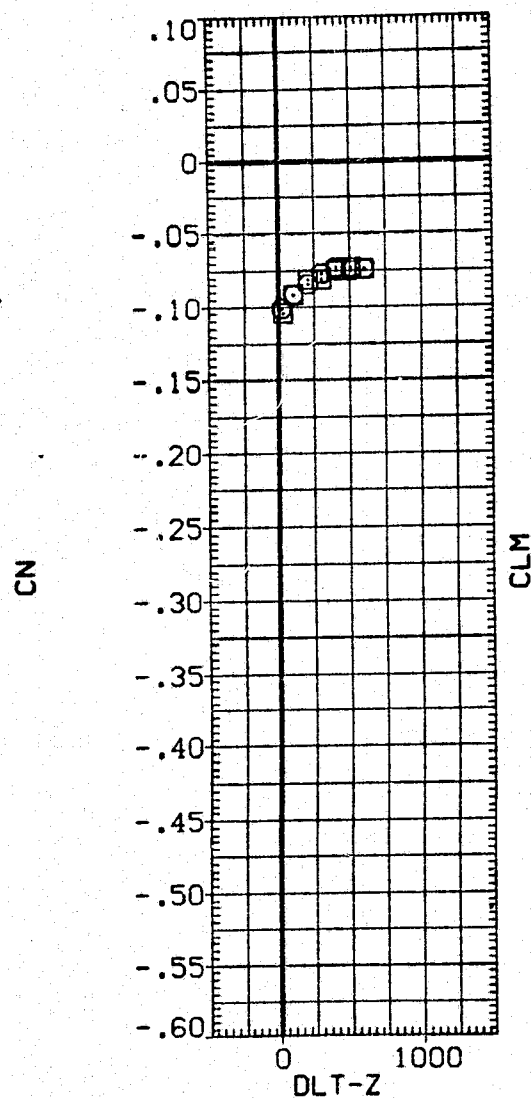


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR239)

SYMBOL	DLT-X		PARAMETRIC VALUES		ALPHA	
	DLT-X	DLT-Y	DLT-Y	DLT-X	ALPHA	DLT-X
□	.583	BETA	.000	DLTALF	.000	
○	200.420	DLTBTA	3.000	MACH	5.930	
		AILRON	.000	ELEVON	.000	
		GRID	6.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

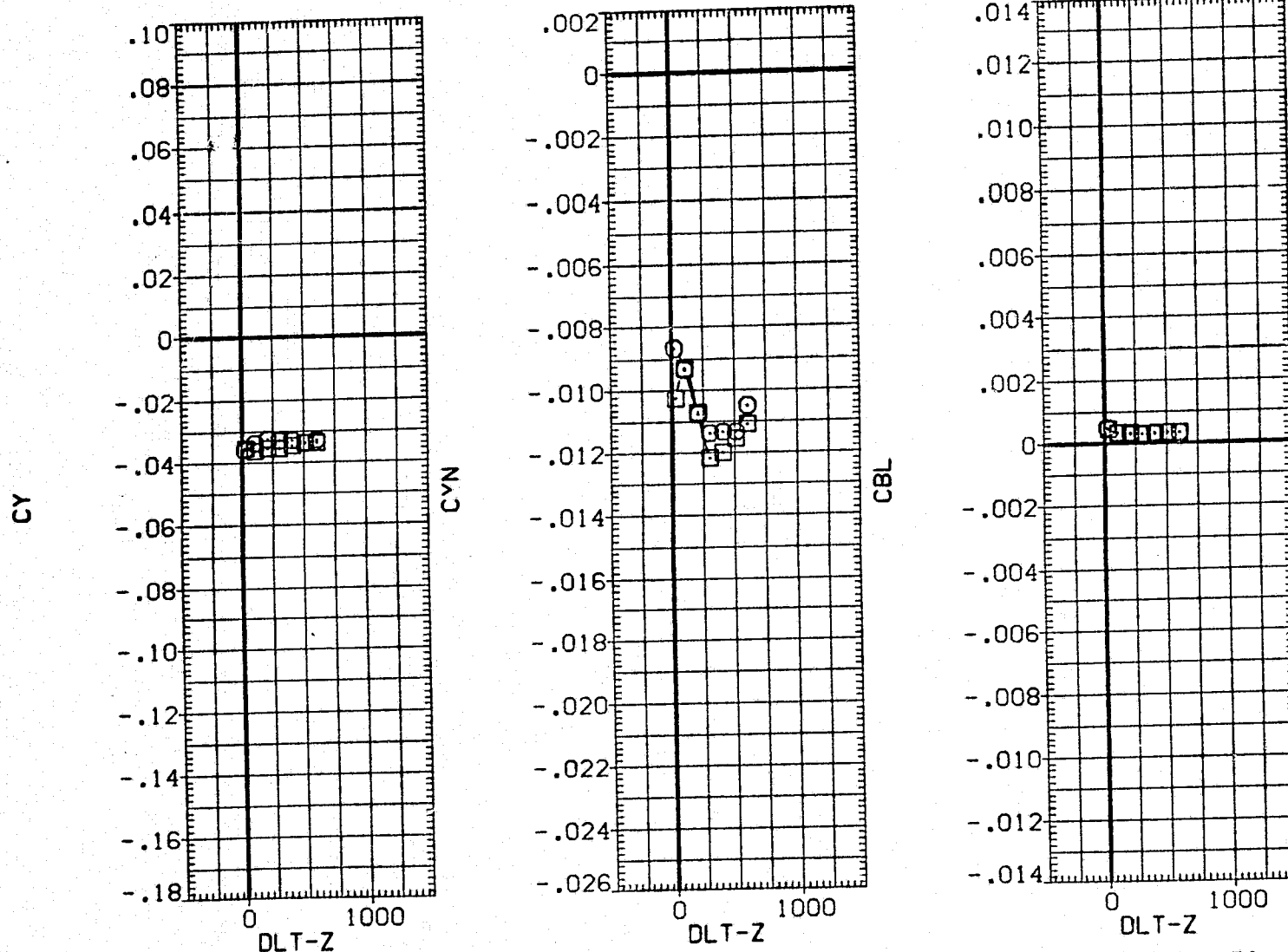


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR240)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.424	BETA	60.000	-5.000	
□	200.490	DLTBTA	.000	-10.000	
◇	400.420	AILRON	3.000	5.930	
		GRID	.000	.000	
			6.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

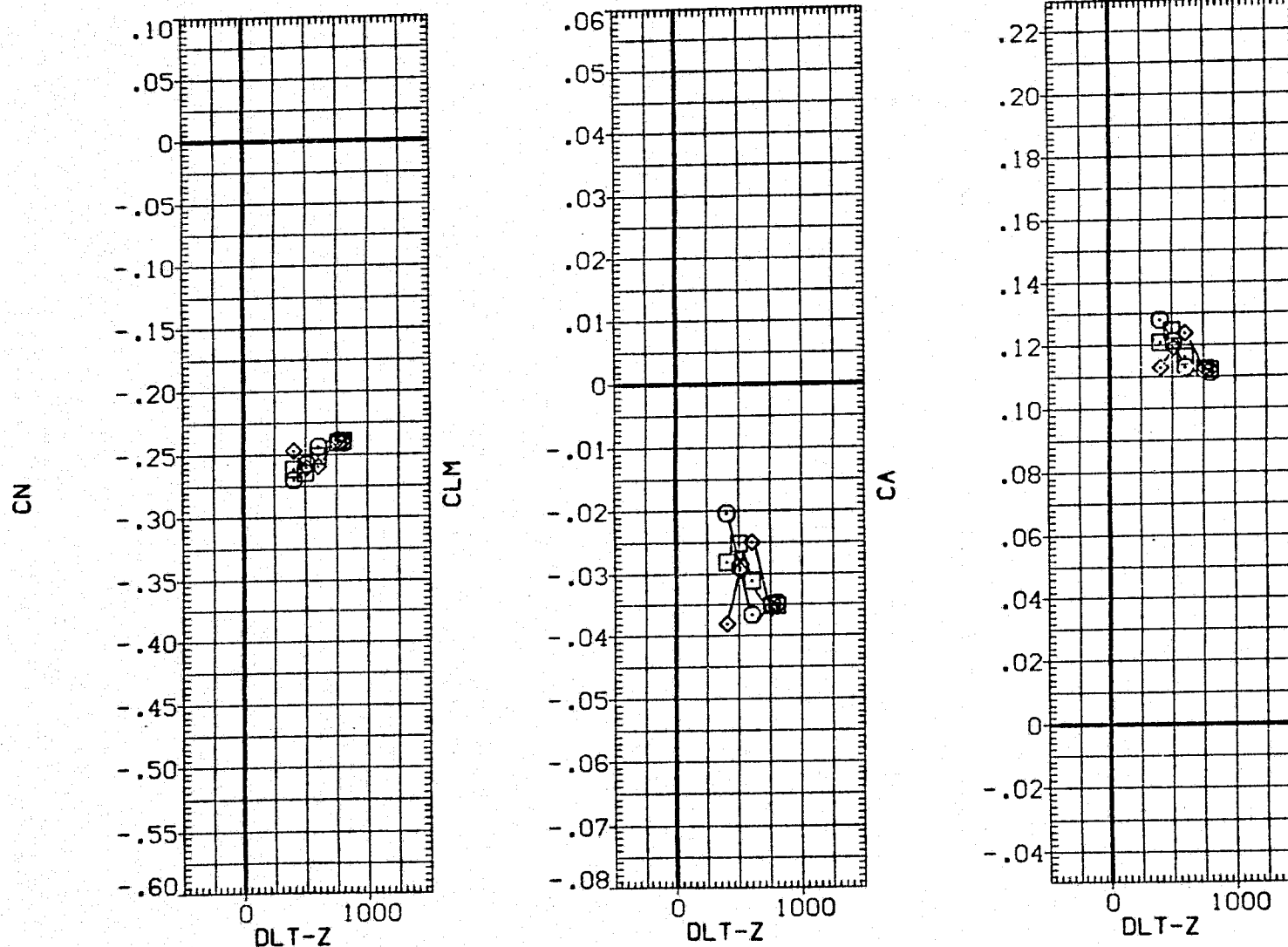


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR240)

SYMBOL		PARAMETRIC VALUES			
○	DLT-X	DLT-Y	60.000	ALPHA	-5.000
□	.424	BETA	.000	DLTALF	-10.000
◇	200.490	DLTBTA	3.000	MACH	5.930
	400.420	AILRON	.000	ELEVON	.000
		GRID	6.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

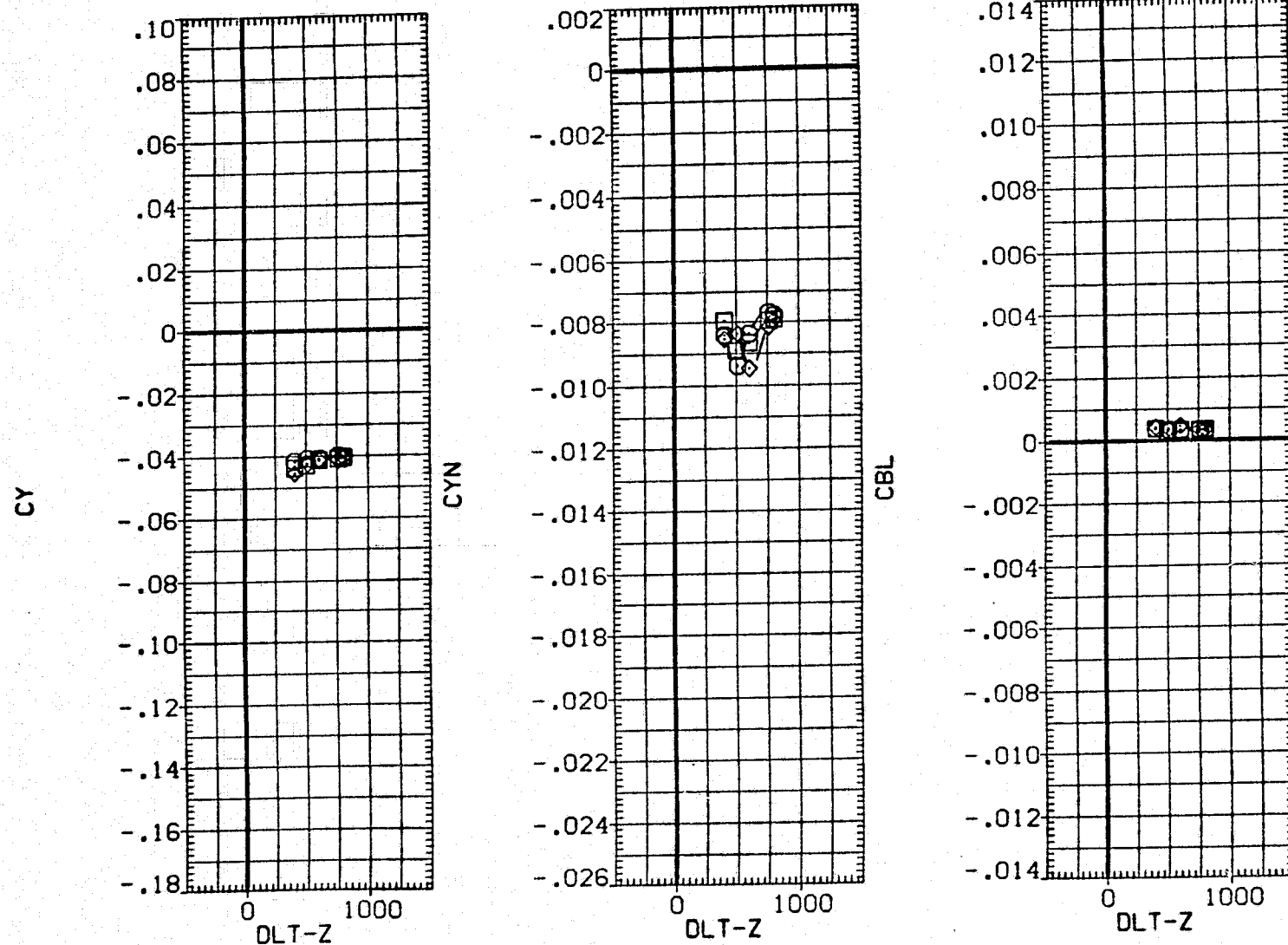


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR242)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	ELEVON
○	.465	60.000	ALPHA	-5.000	
□	200.350	BETA	DLTALF	-20.000	
◇	400.350	DLTBTA	MACH	5.930	
		AILRON	ELEVON	.000	
		GRID			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

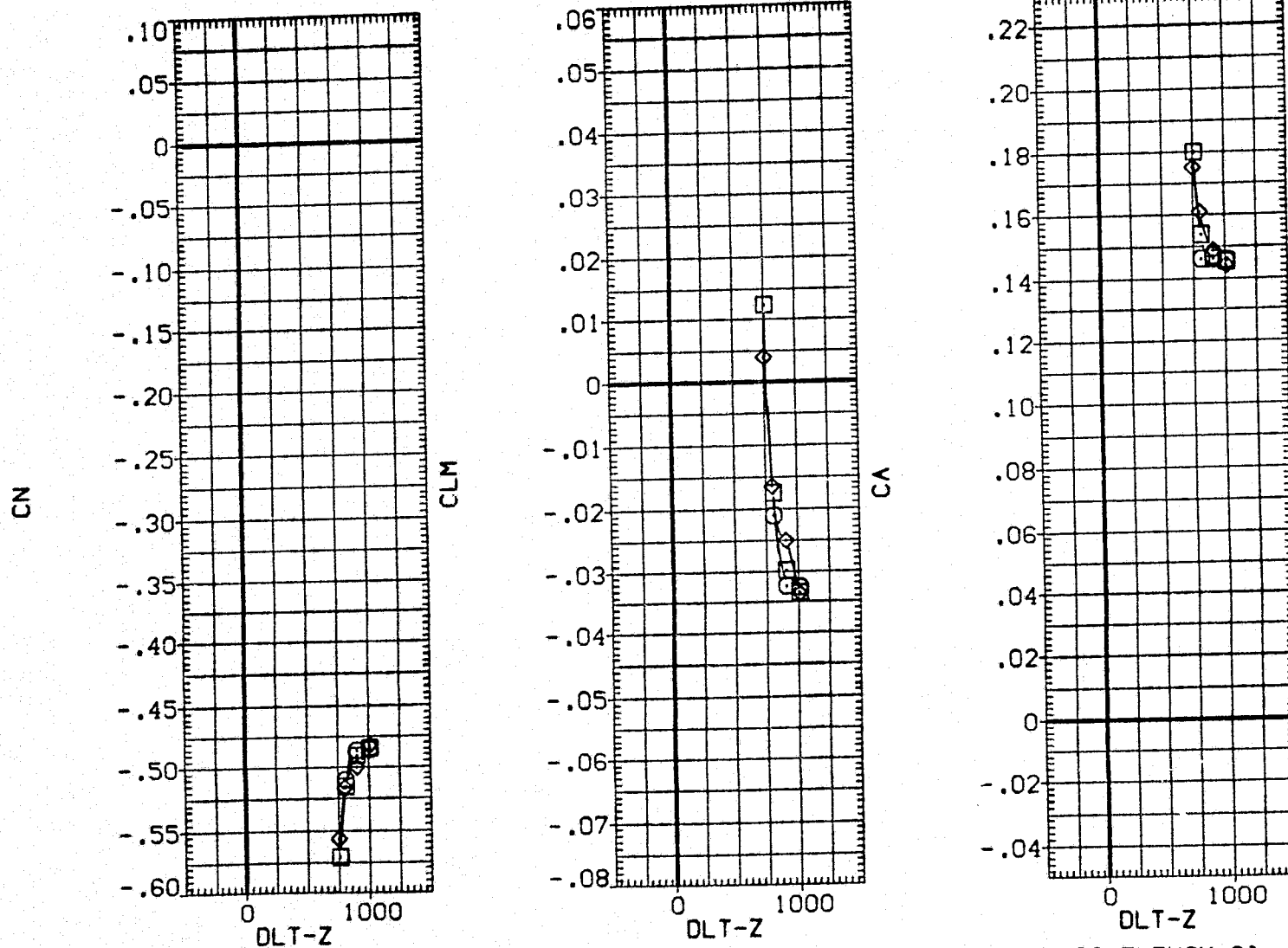


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR242)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-Y	ALPHA
○	.465	60.000	60.000	-5.000
□	200.350	BETA	.000	DLTALF -20.000
◇	400.350	DLTBT	3.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	6.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

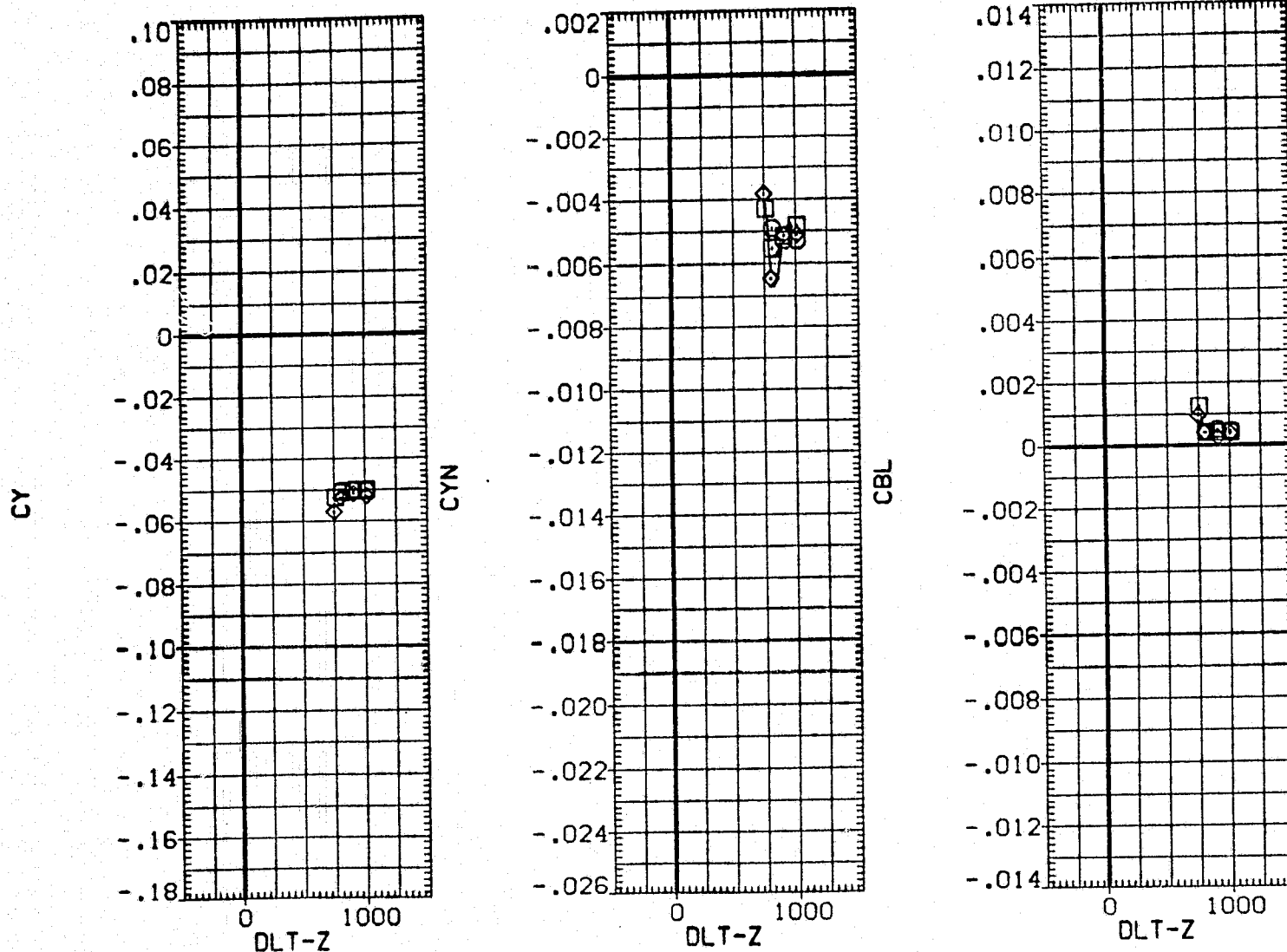


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR243)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-Y	DLT-Z	ALPHA	DLTALF	
○	.633		60.000		-5.000
□	200.520		3.000		.000
			.000		5.930
			.000		.000
			7.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

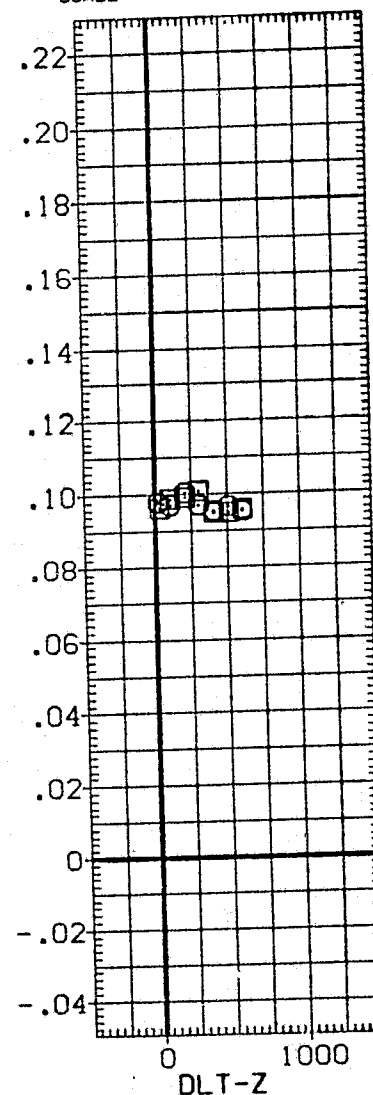
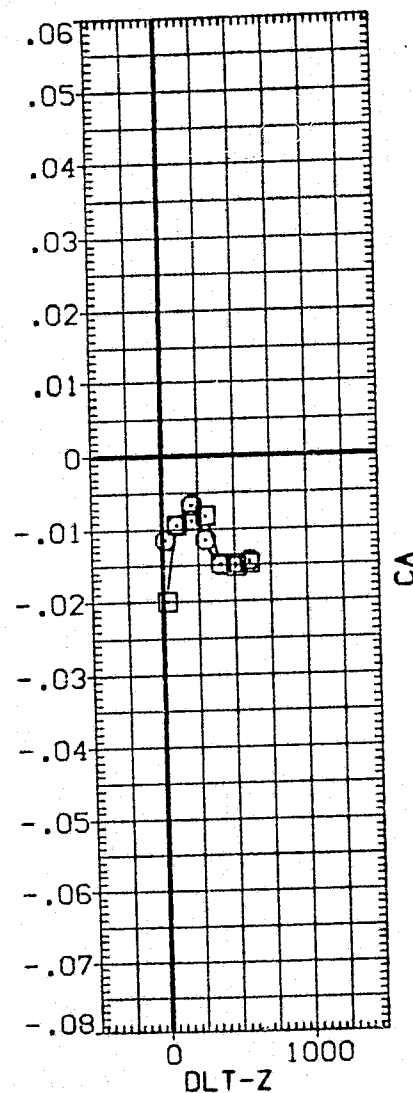
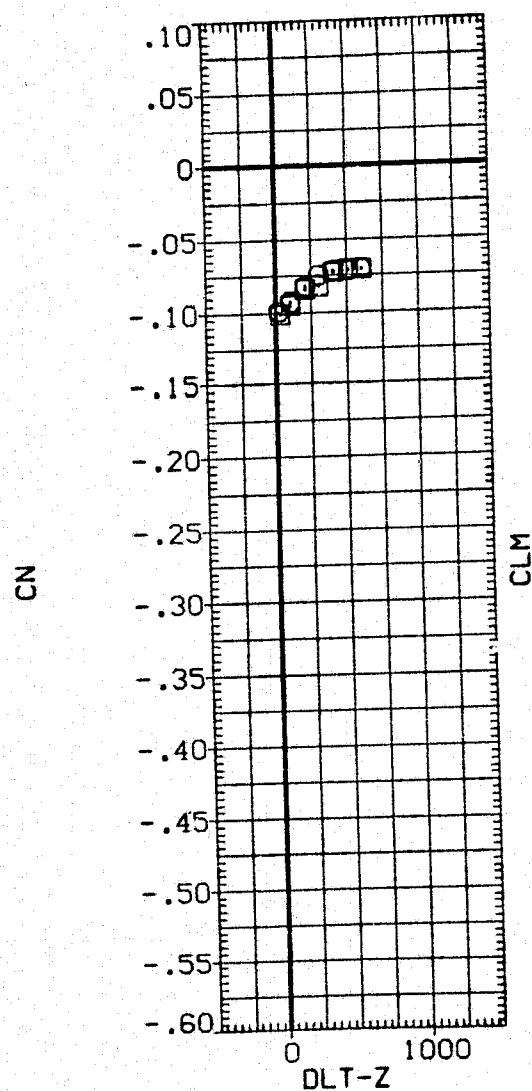


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR243)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
			60.000	ALPHA	-5.000
○	.633	BETA	3.000	DLTALF	.000
□	200.520	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	7.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

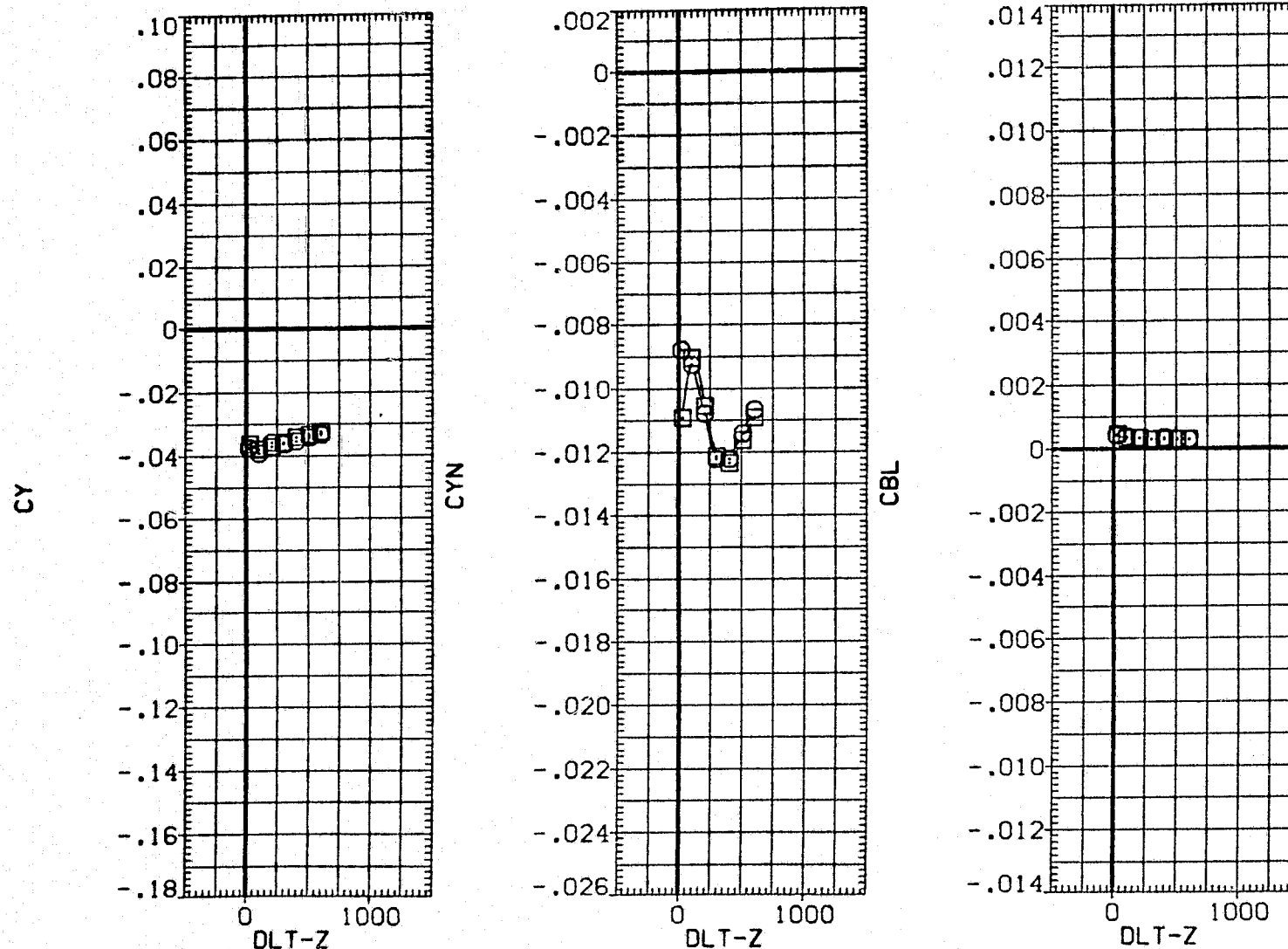


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR244)

SYMBOL		PARAMETRIC VALUES			
○	DLT-X	DLT-Y	60.000	ALPHA	-5.000
□	.541	BETA	3.000	DLTALF	-10.000
◇	200.610	DLTBTA	.000	MACH	5.930
	400.490	AIRLON	.000	ELEVON	.000
		GRID	7.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

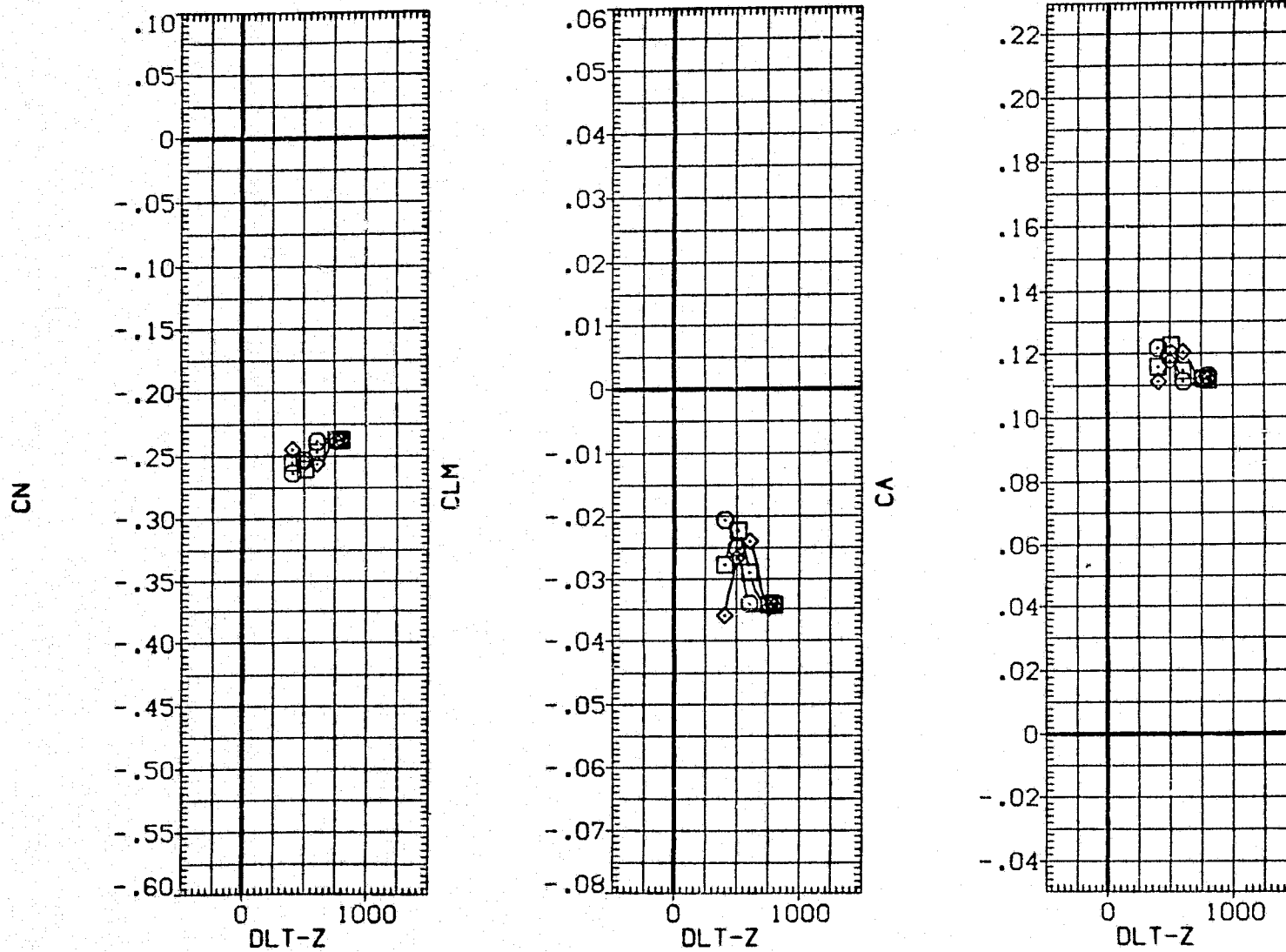


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR244)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.541	60.000	ALPHA	-5.000	
	200.610	BETA	3.000	DLTALF	-10.000
	400.490	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	7.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

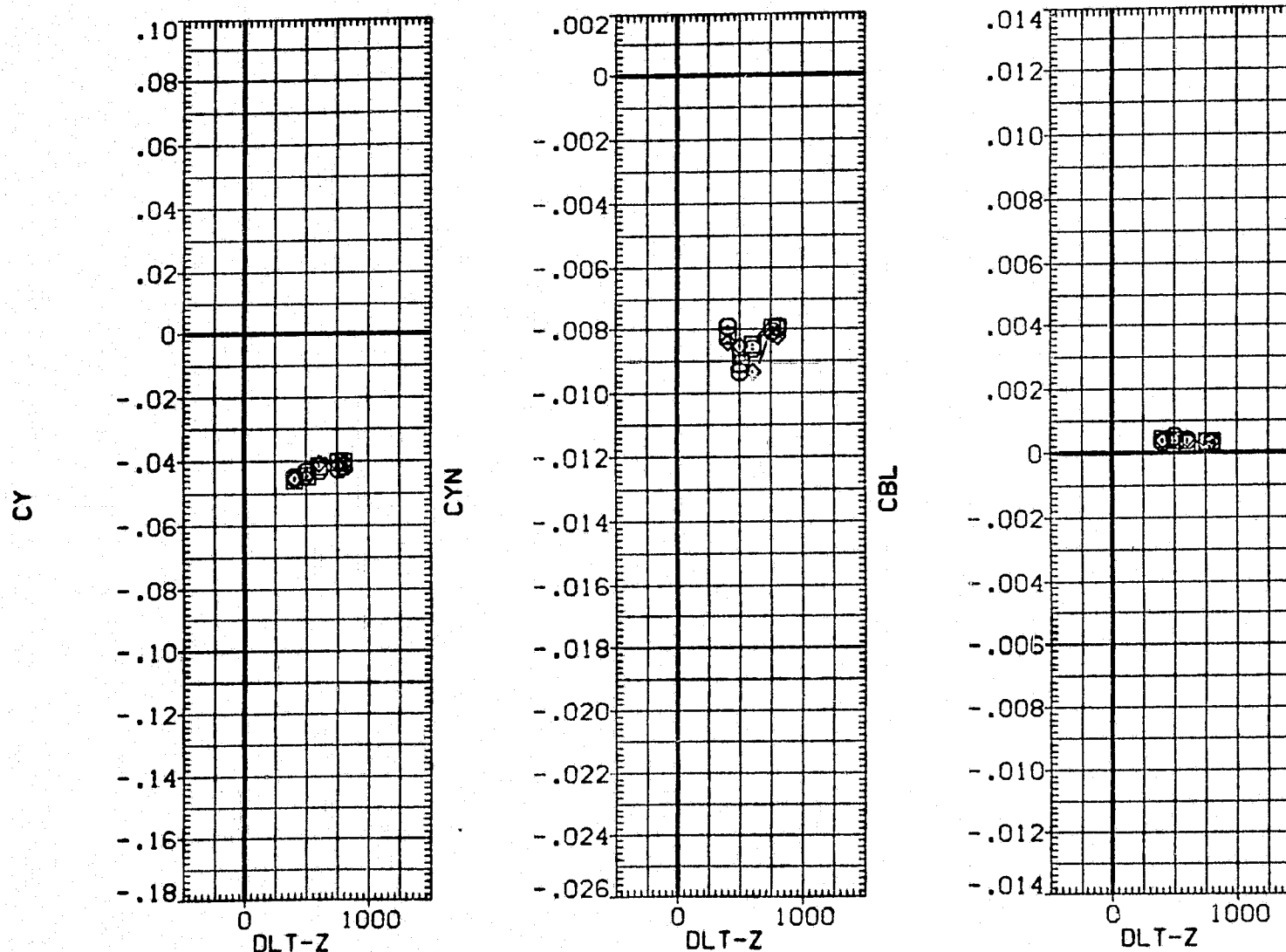


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR246)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
			60.000	ALPHA
○	.384	BETA	3.000	DLTALF
□	200.330	DLTBTA	.000	MACH
◇	400.510	AILRON	.000	ELEVON
		GRID	7.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

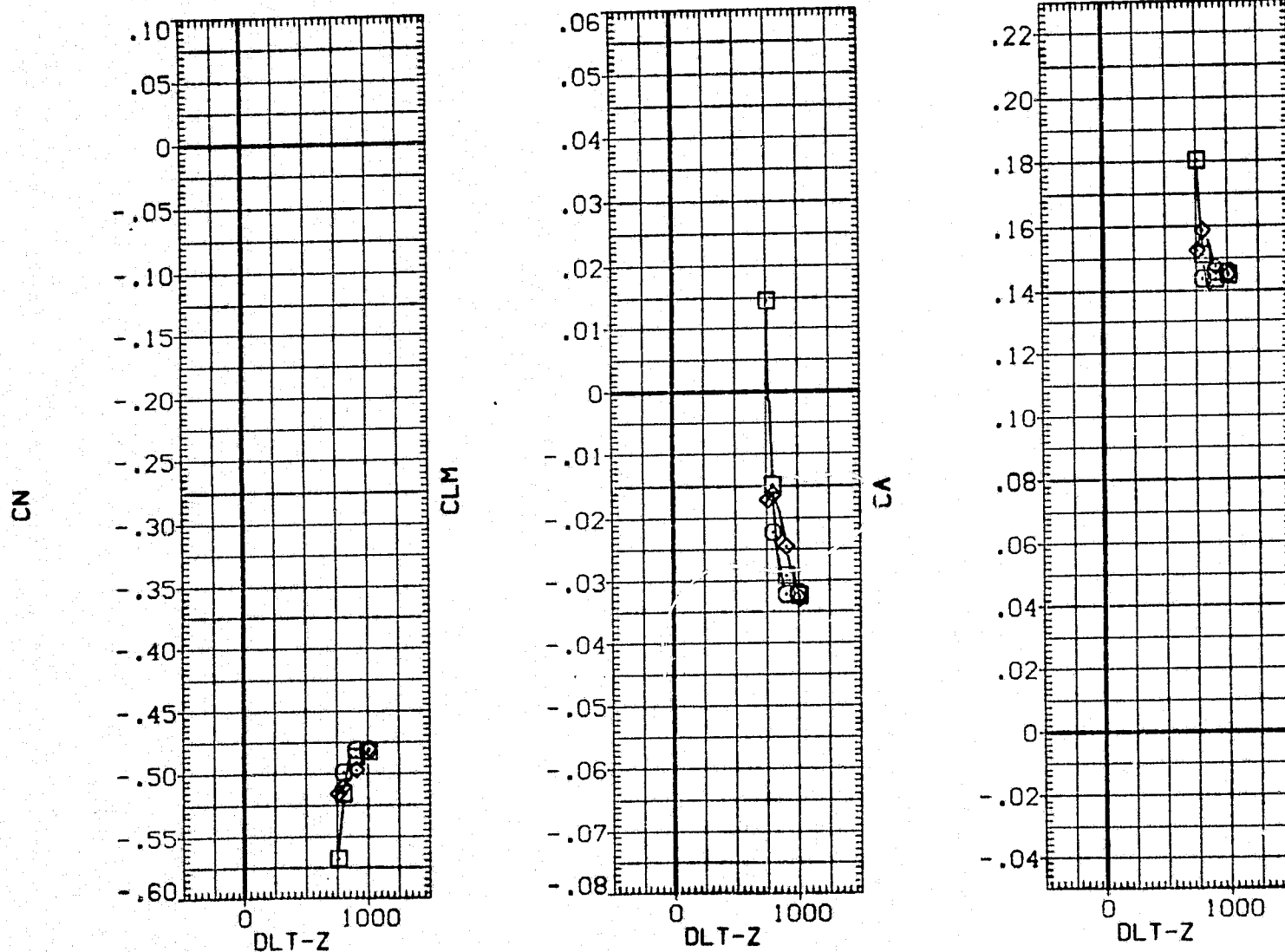


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR246)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.384	60.000	60.000	-5.000	
□	200.330	BETA	3.000	DLTALF	-20.000
◇	400.510	DLTBT	.000	MACH	5.930
		AIRLON	.000	ELEVON	.000
		GRID	7.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

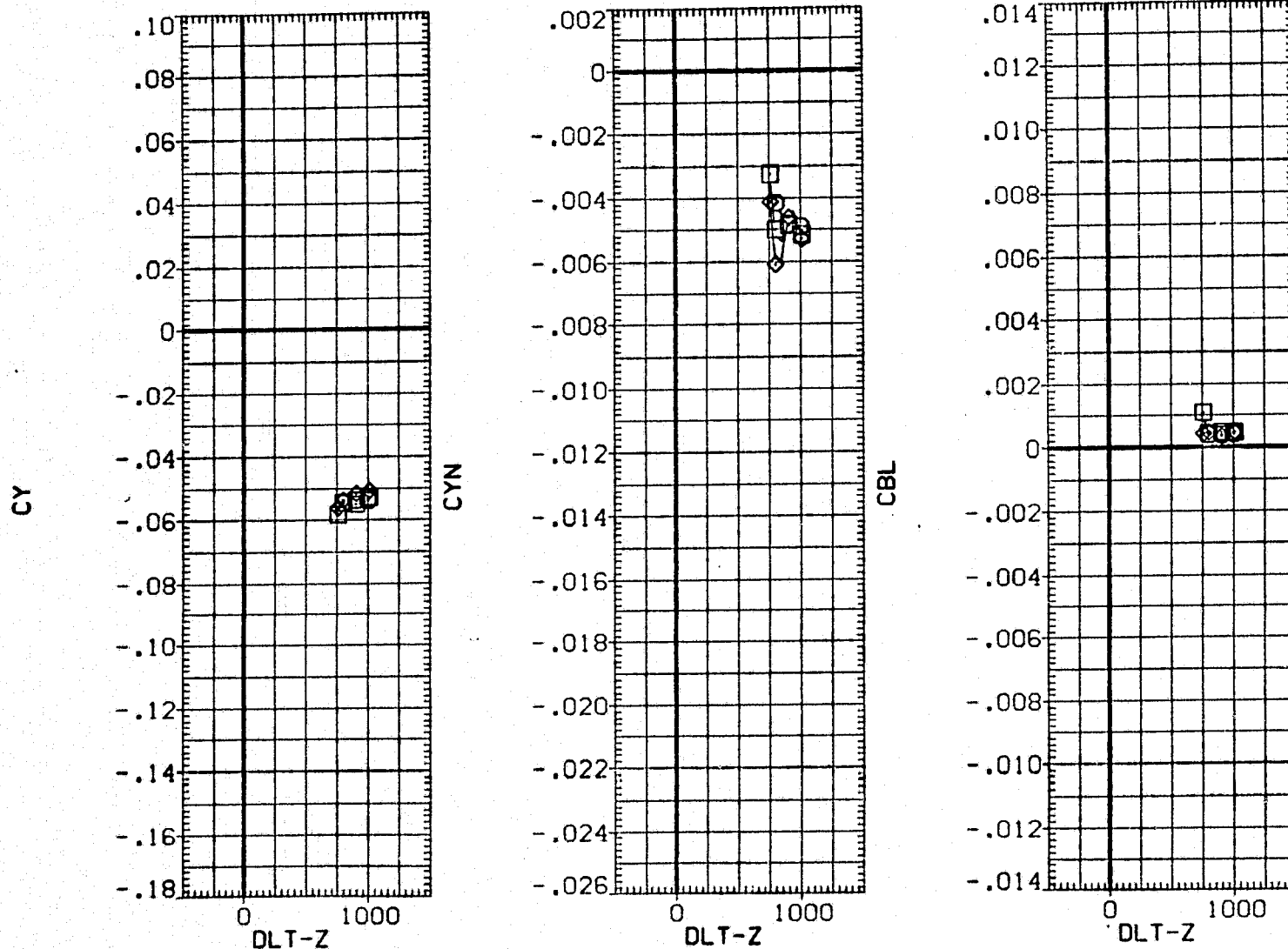


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR247)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.560	BETA	60.000	ALPHA
□	200.400	DLTBTA	3.000	DLTALF
		AILRON	.000	MACH
		GRID	7.000	ELEVON

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

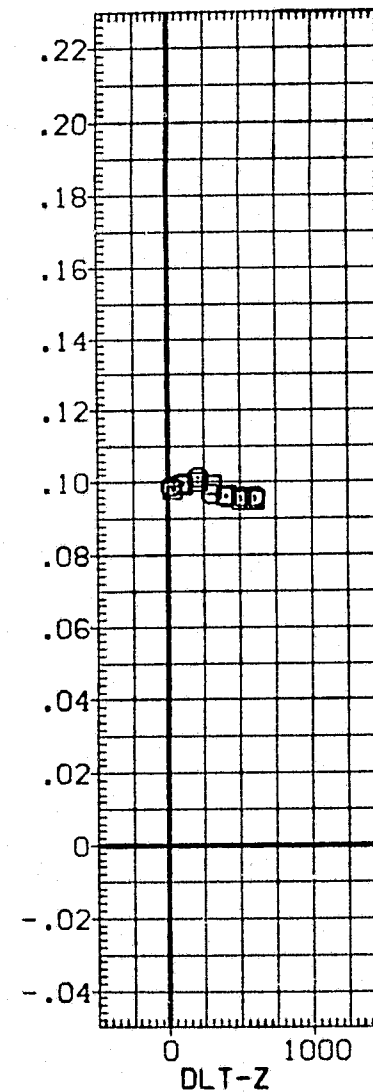
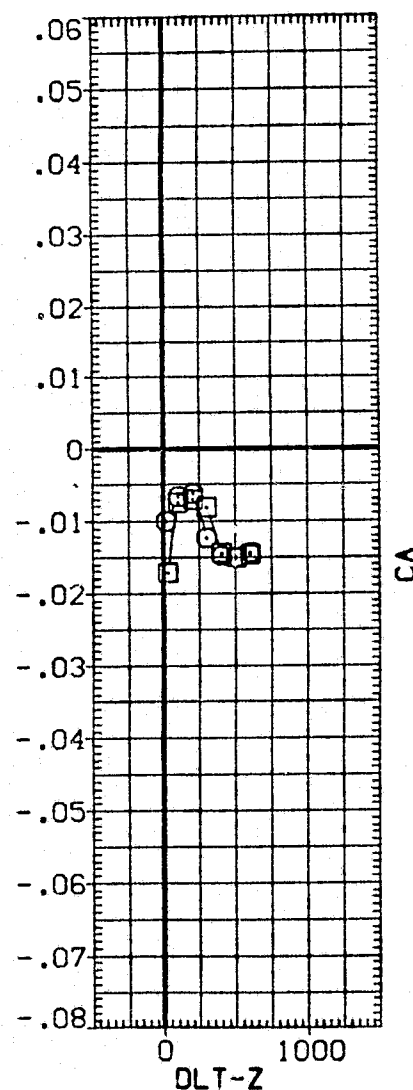
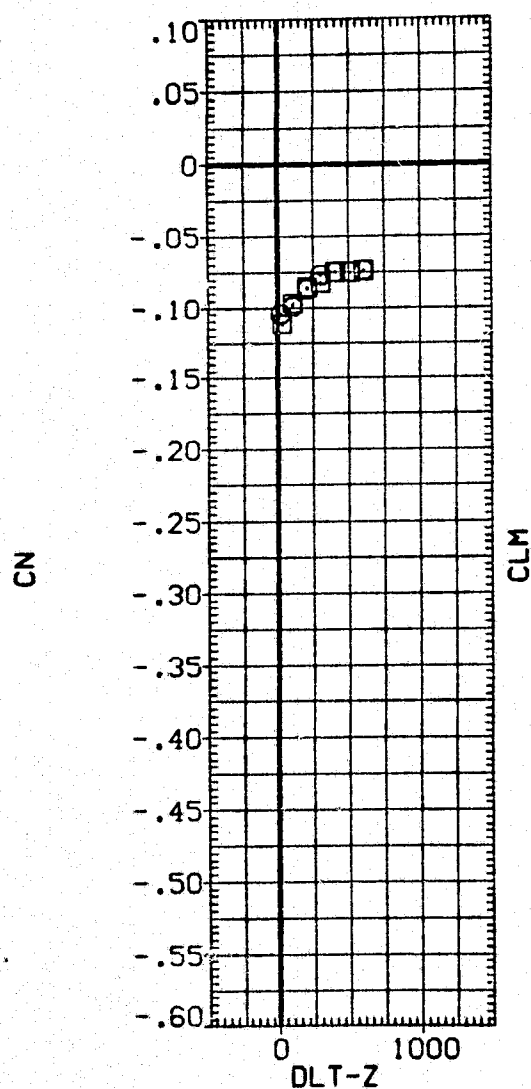


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR247)

SYMBOL		PARAMETRIC VALUES			
○	DLT-X	DLT-Y	60.000	ALPHA	-5.000
□	.560	BETA	3.000	DLTALF	.000
	200.400	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	7.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

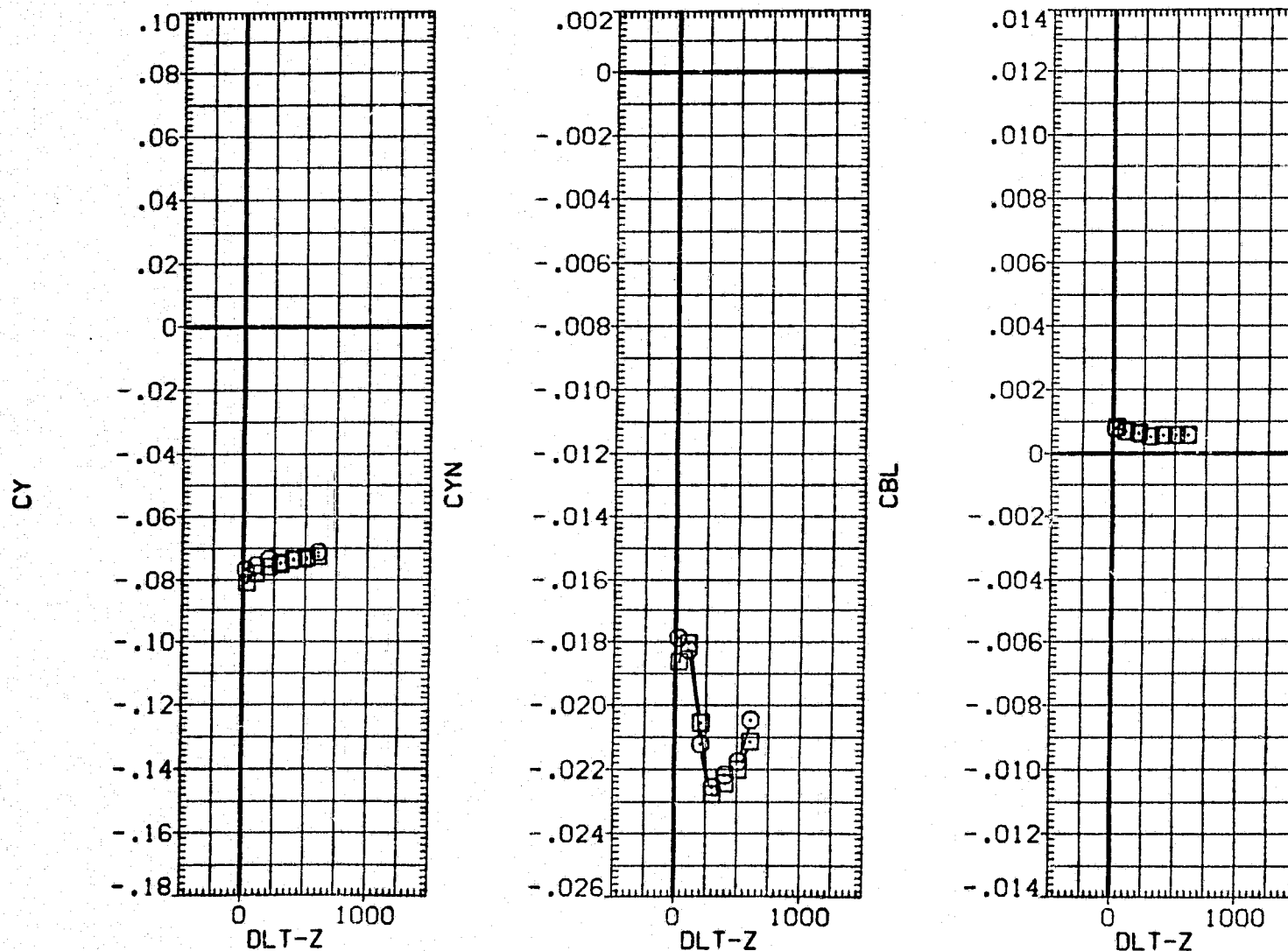


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR248)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.538	60.000	ALPHA	-5.000
□	200.560	BETA	3.000	DLTALF -10.000
◇	400.410	DLTBTA	3.000	MACH 5.930
		XLTRON	.000	ELEVON .000
		GRID	7.000	

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

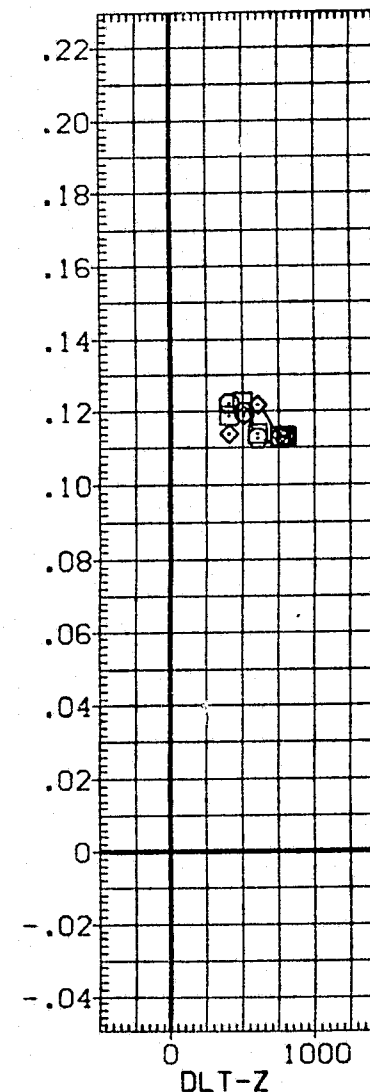
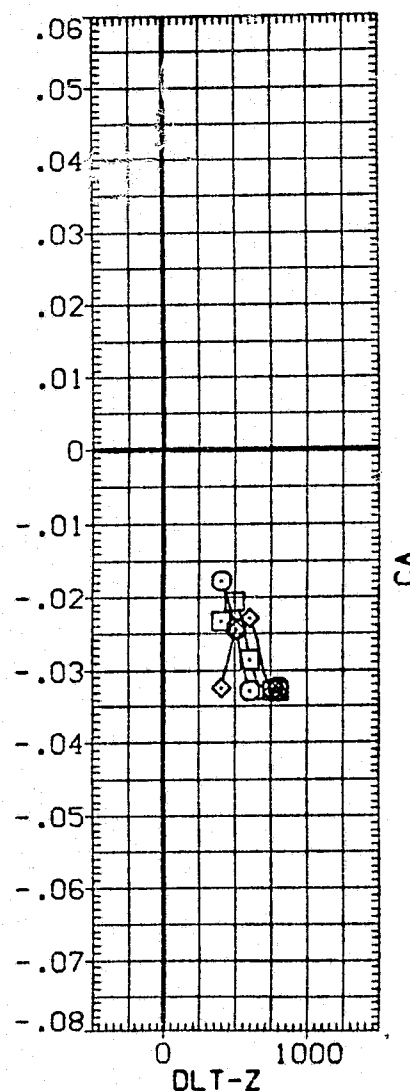
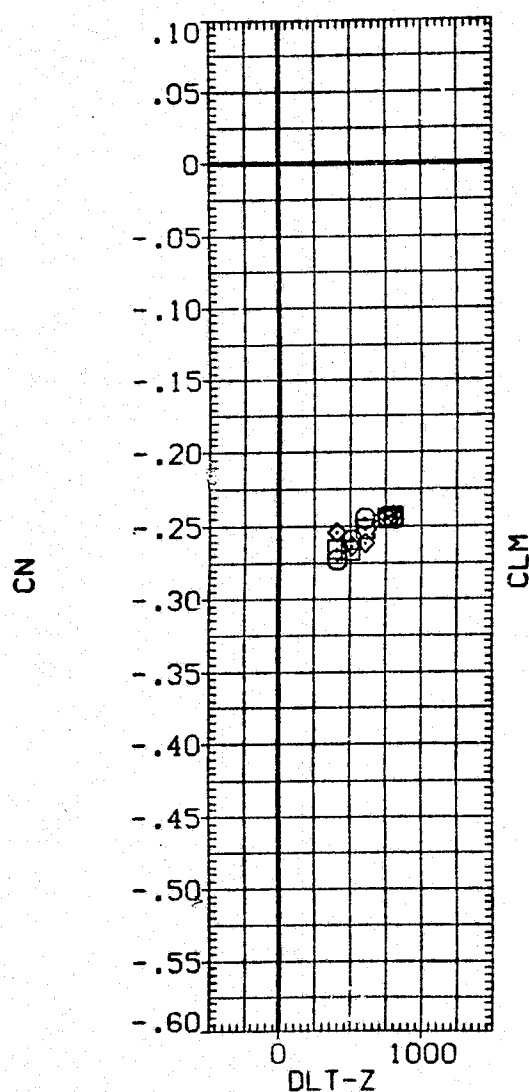


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR248)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
□	.538	60.000	ALPHA	-5.000	
□	200.560	BETA	3.000	DLTALF	-10.000
◇	400.410	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	7.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

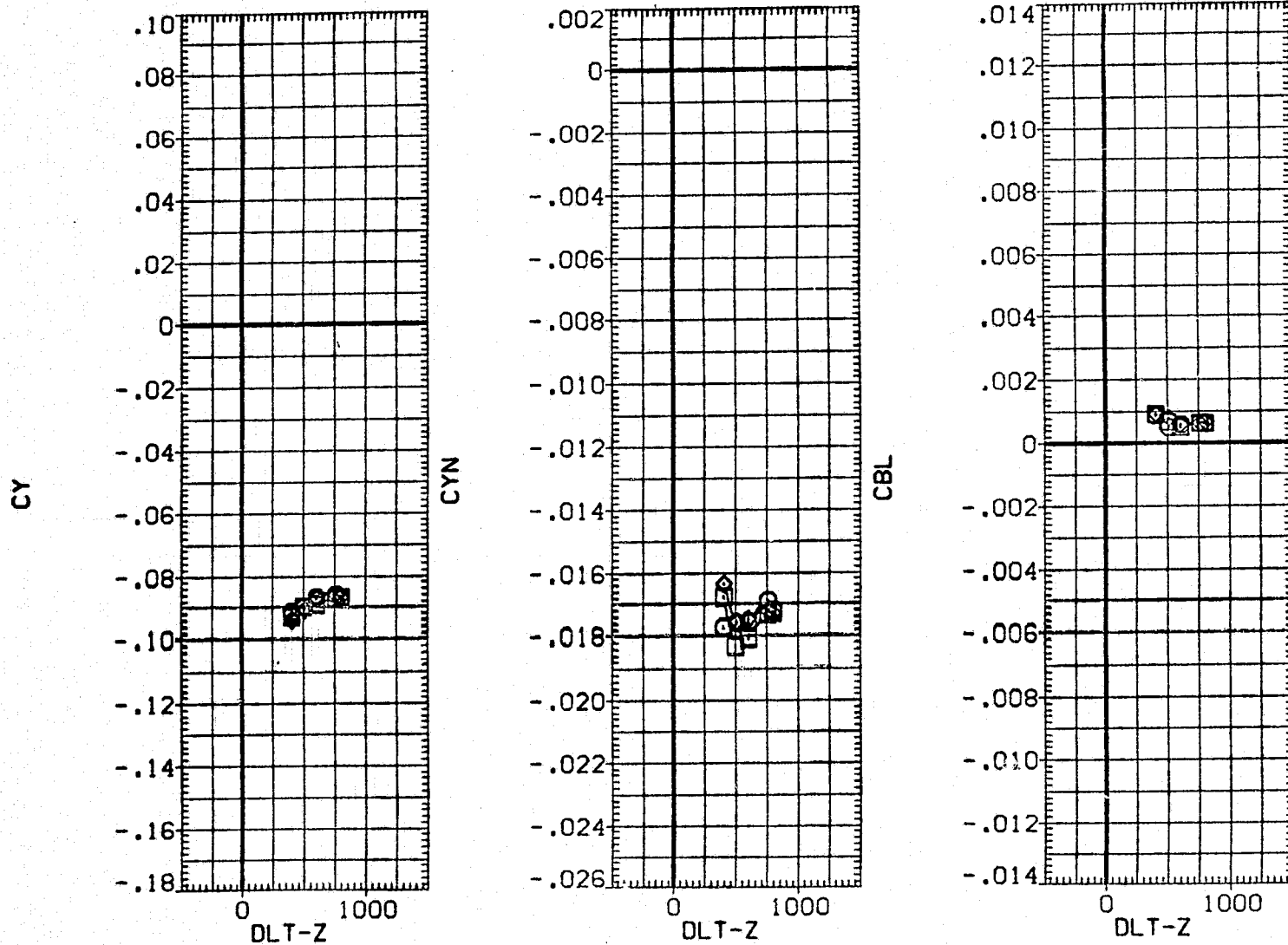


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR250)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.546	60.000	3.000	-5.000	
□	200.370	BETA	3.000	-20.000	
◇	400.450	DLTBTA	3.000	5.930	
		AIRLON	.000	ELEVON	.000
		GRID	7.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

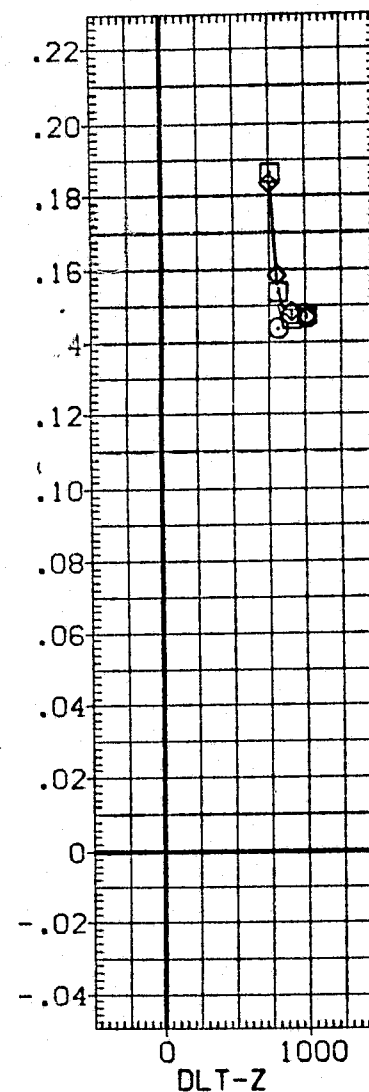
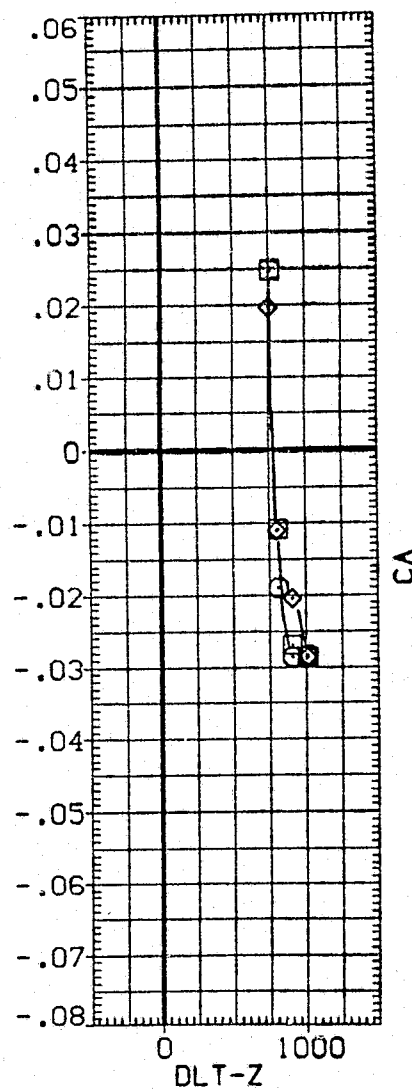
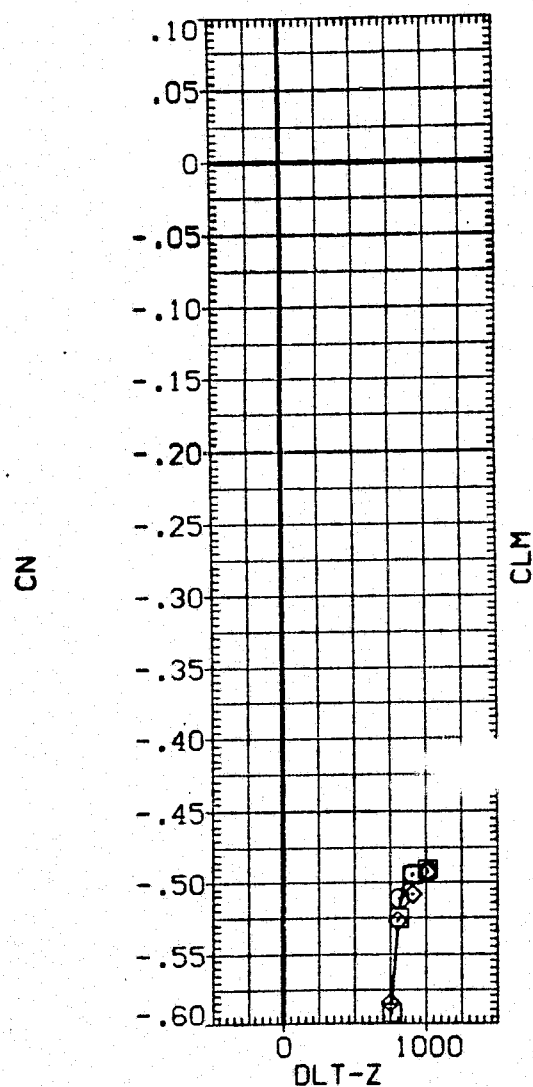


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR250)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.546	60.000	ALPHA	-5.000
□	200.370	BETA	3.000	DLTALF -20.000
◇	400.450	DLTBTA	3.000	MACH 5.930
		ATLRON	.000	ELEVON .000
		GRID	7.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

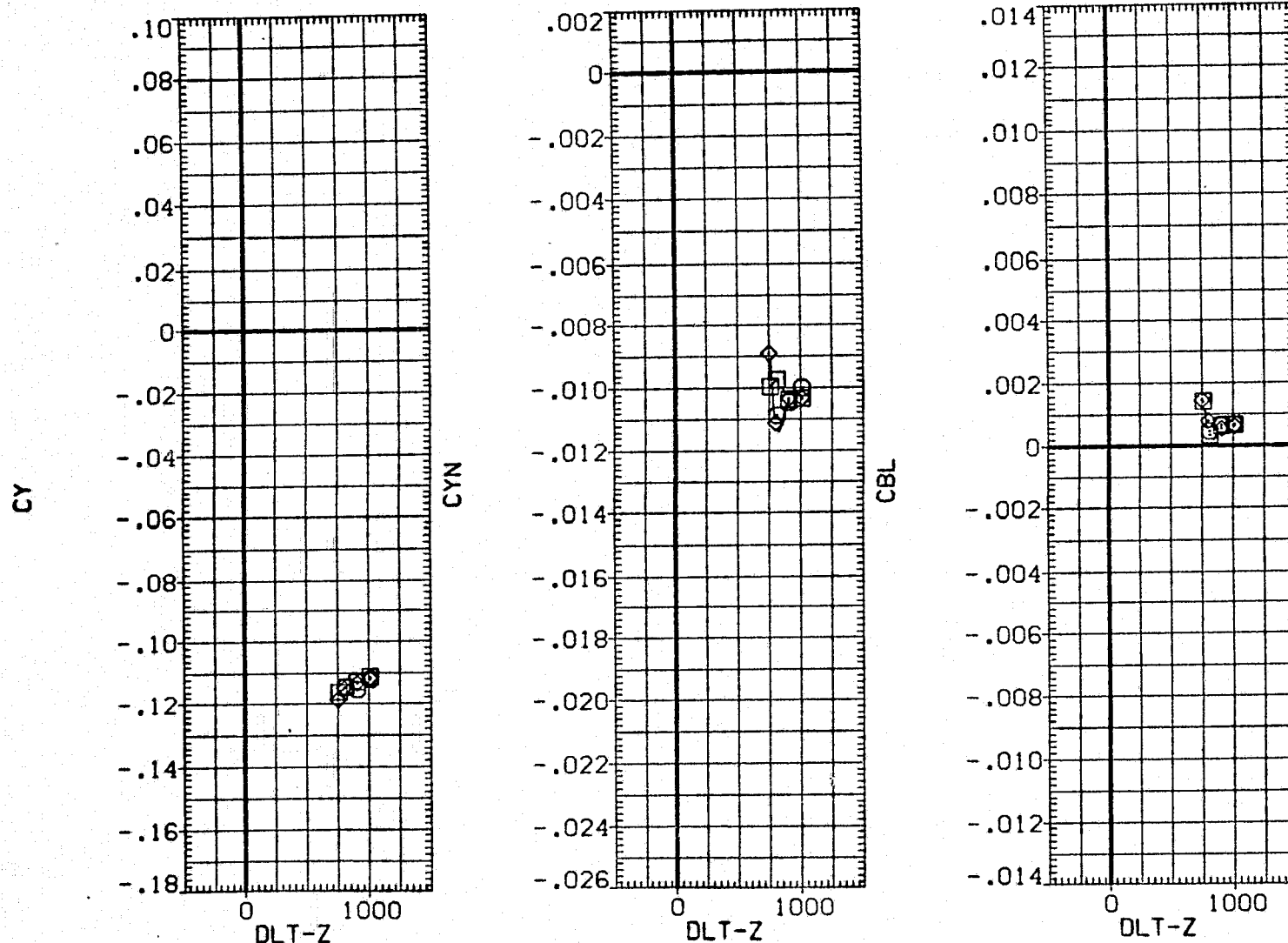


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR327)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	BETA	DLTBTA	ALPHA	DLTALF
○	.521	60.000	.000	.000	10.000	-10.000
□	200.500	.000	.000	.000	MACH	5.930
◇	400.470	.000	.000	.000	ELEVON	.000
		GRID	23.000			

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
YMRP	1360.1000 IN. XT
ZMRP	.0000 IN. YT
SCALE	416.4000 IN. ZT

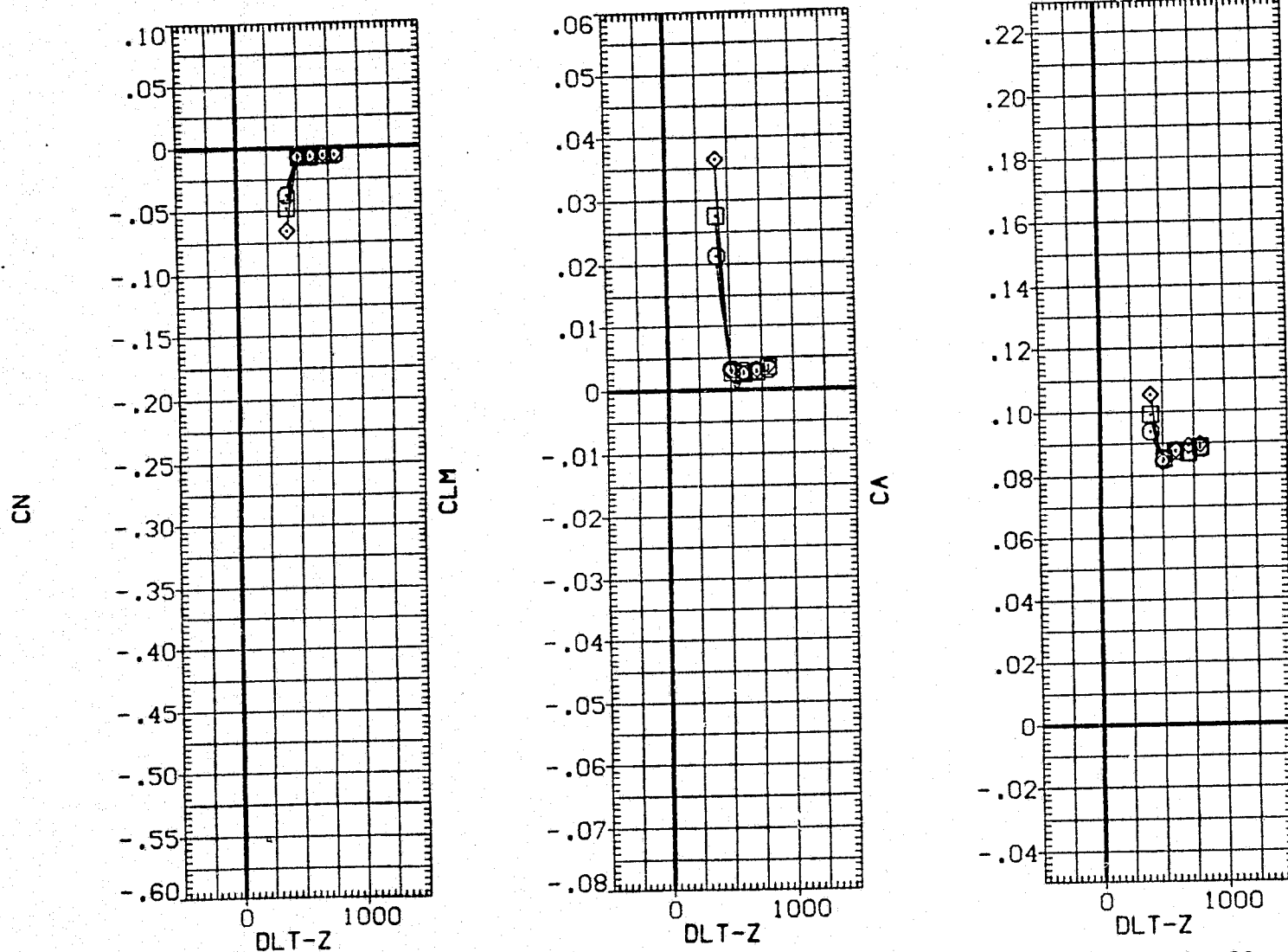


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR327)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.521	60.000	ALPHA	10.000
□	200.500	BETA	DLTALF	-10.000
◇	400.470	DLTBTA	MACH	5.930
		AILRON	ELEVON	.000
		GRID		23.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

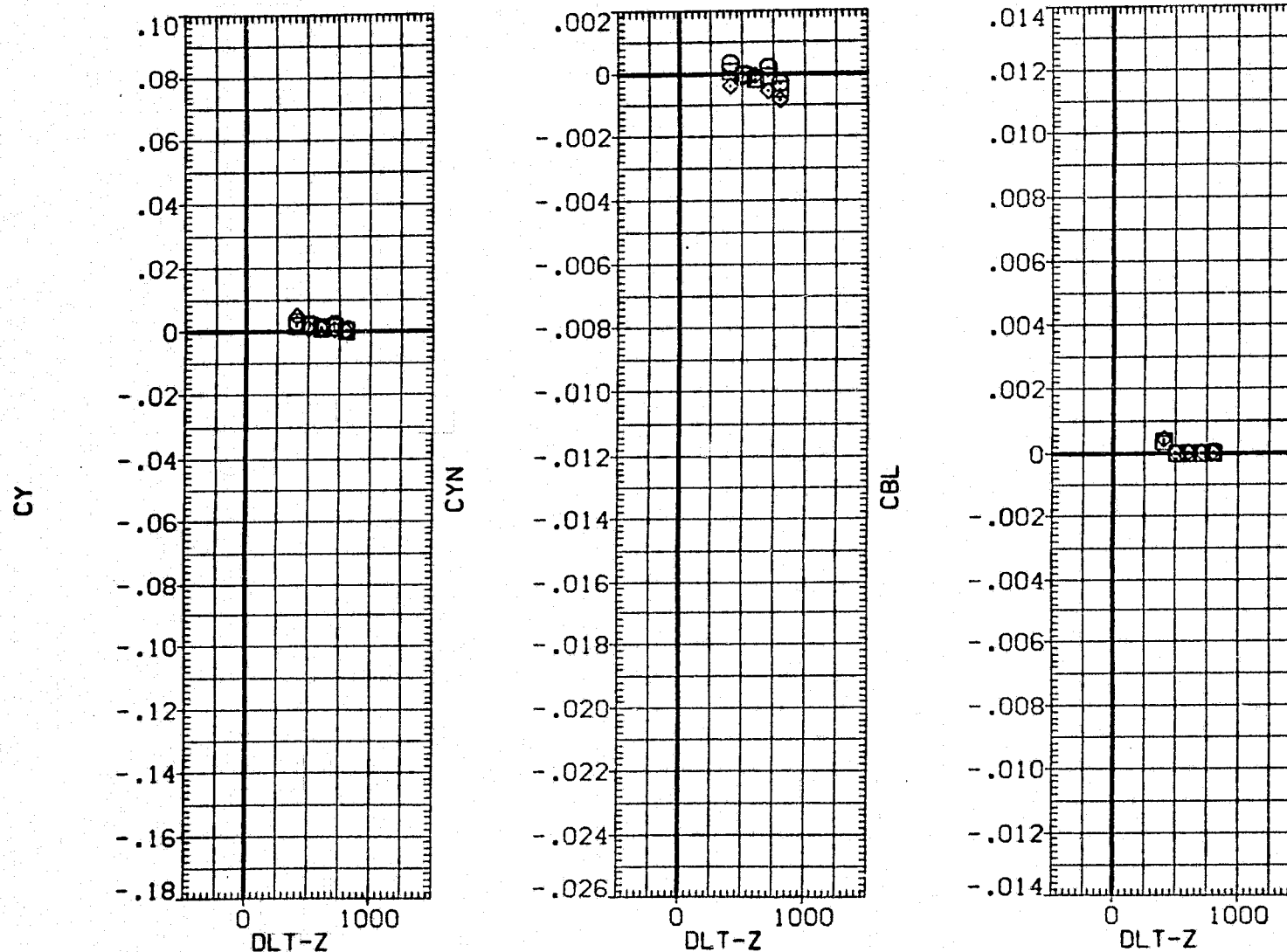


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR328)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	10.000
○	.472	BETA	60.000	DLTALF	-20.000
□	200.490	DLTBTA	.000	MACH	5.930
◇	400.500	AILRON	.000	ELEVON	.000
		GRID	23.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

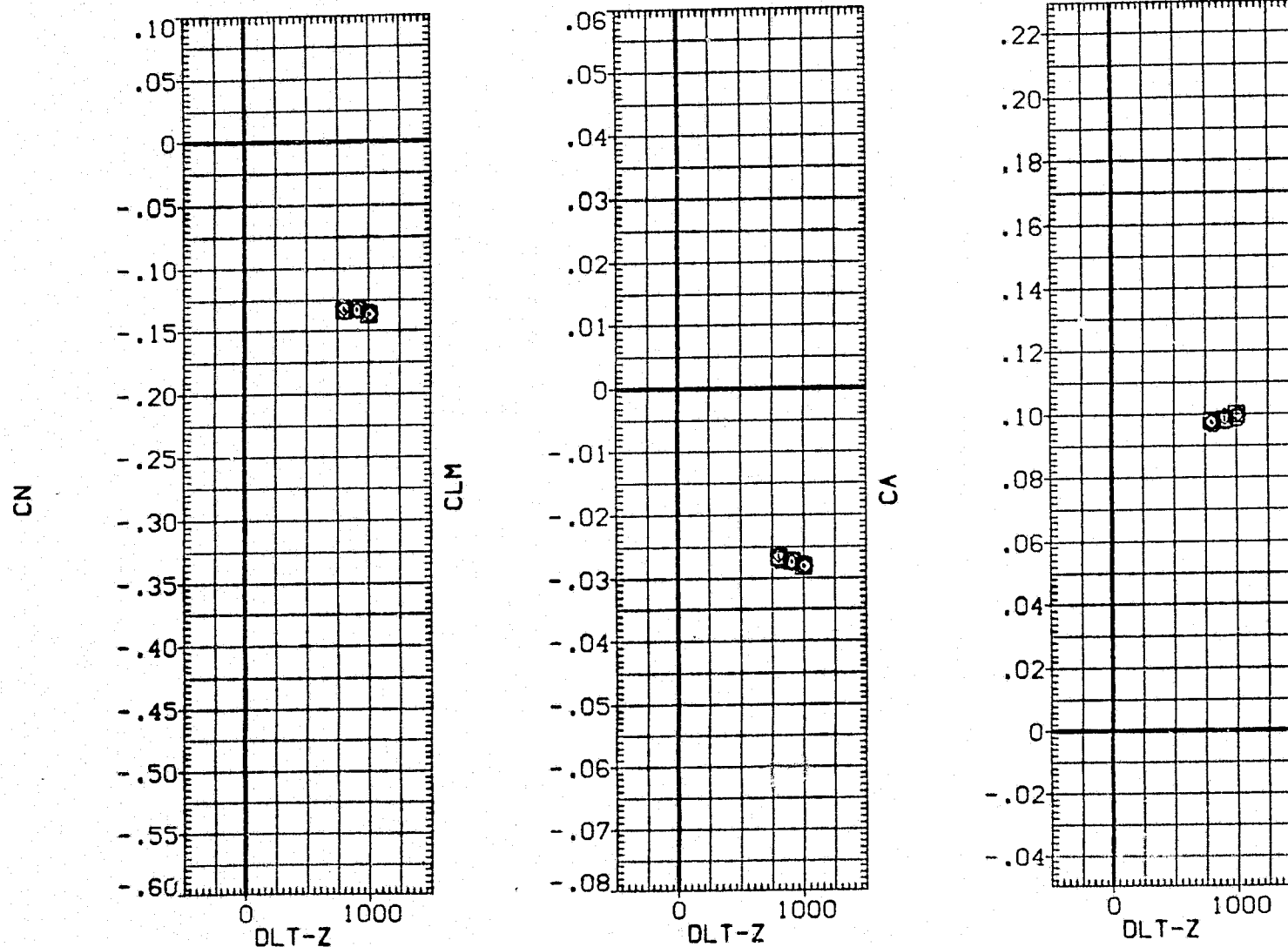


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR328)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES
○	.472	60.000	ALPHA 10.000
□	200.490	.000	DLTALF -20.000
◇	400.500	.000	MACH 5.930
		.000	ELEVON .000
		GRID 23.000	

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

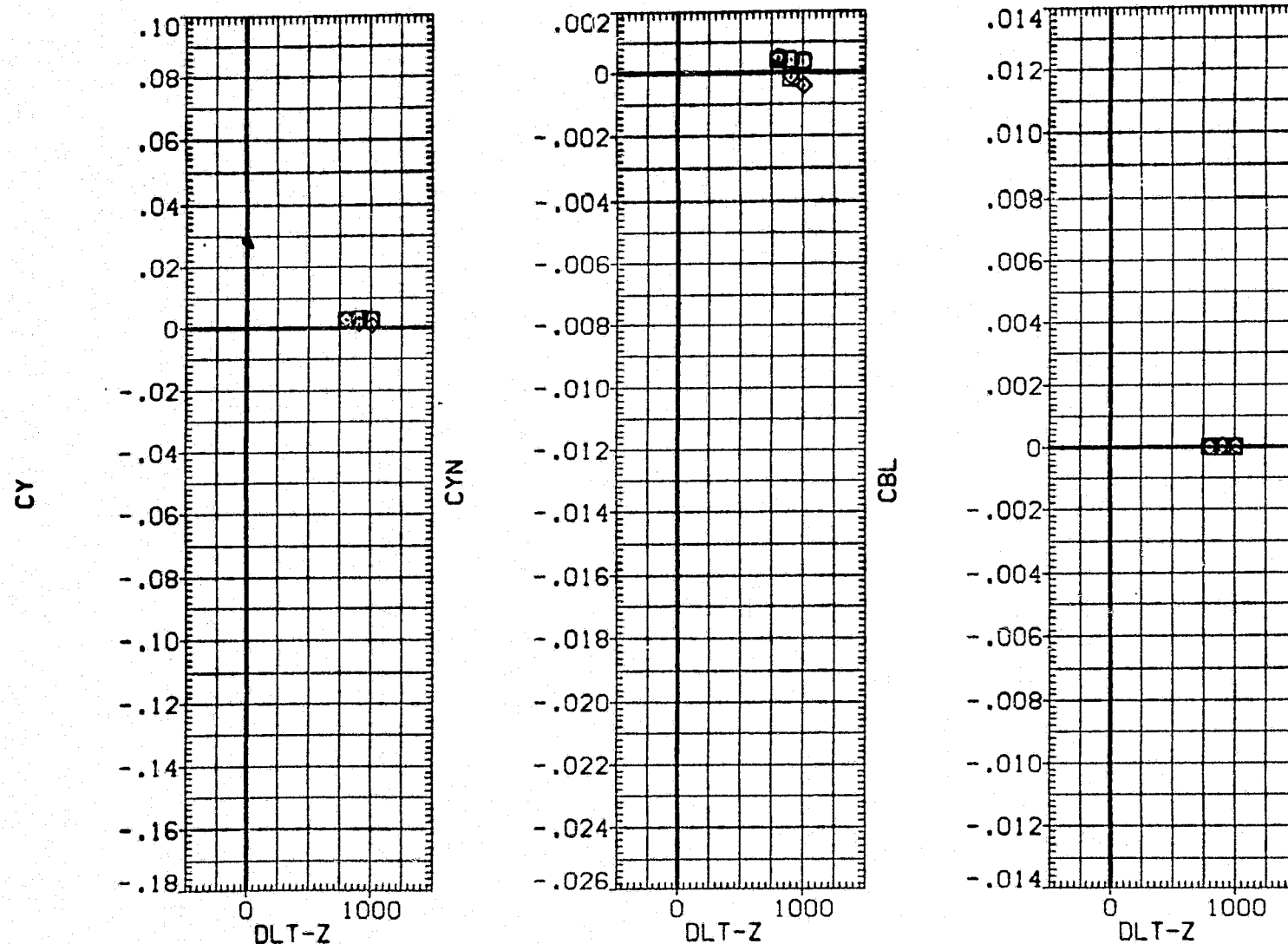


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR329)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.581		60.000	ALPHA 10.000
□	200.410	BETA .000		DLTALF -10.000
◇	400.540	DLTBTA 3.000		MACH 5.930
		AILRON .000		ELEVON .000
		GRID 23.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

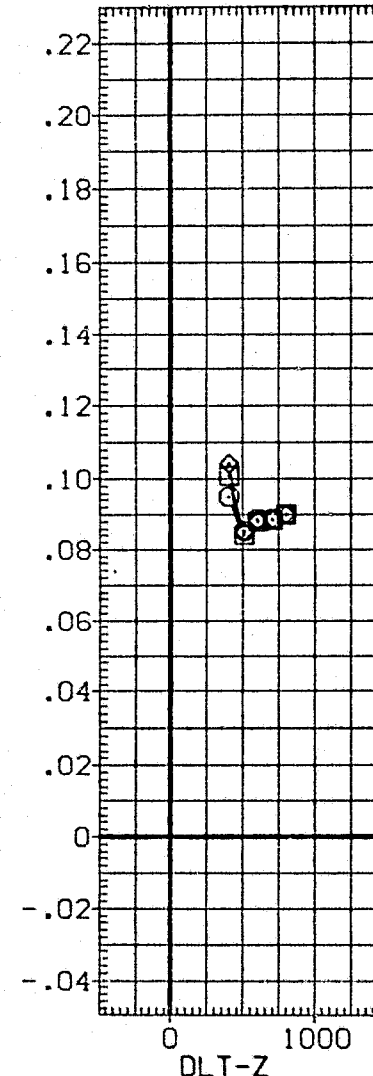
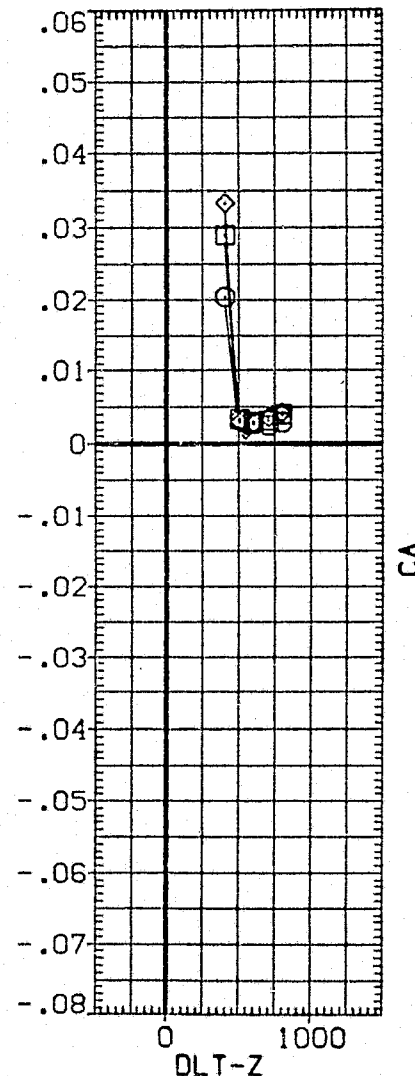
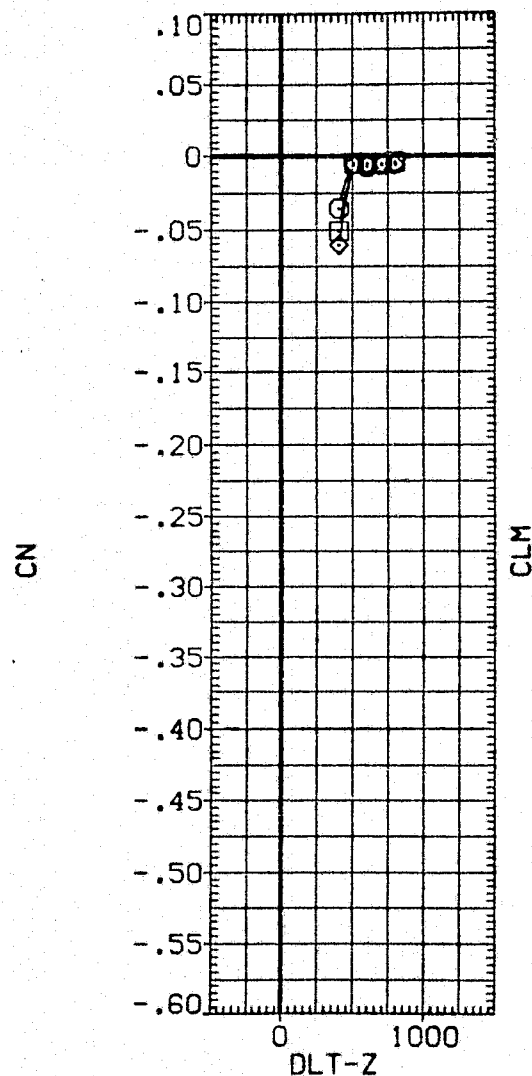


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR329)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.581	60.000	ALPHA	10.000	
	200.410	BETA	.000	DLTALF	-10.000
	400.540	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	23.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

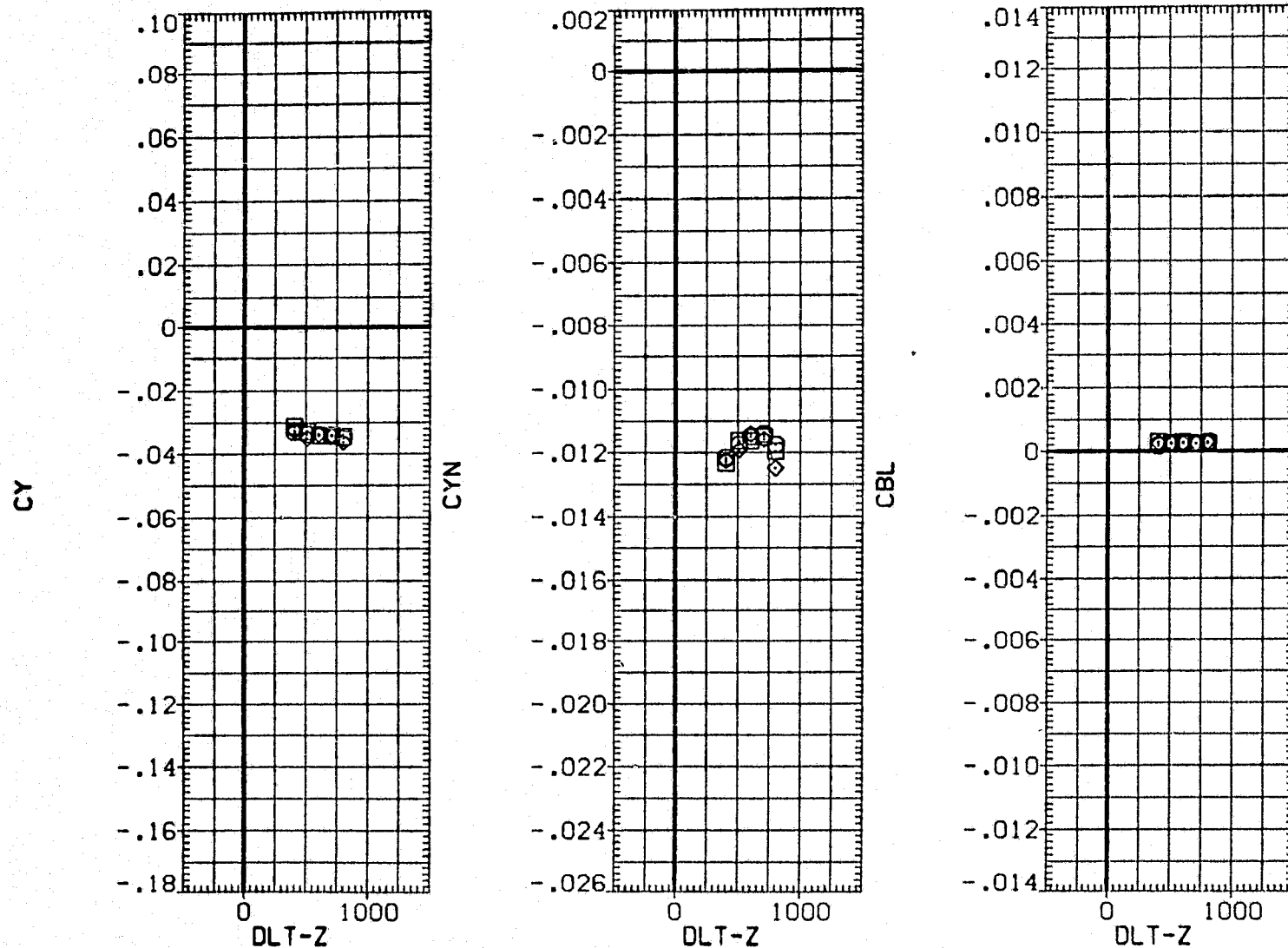


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR330)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.513	DLT-Y	60.000	ALPHA	10.000	
□	200.550	BETA	.000	DLTALF	-20.000	
◇	400.530	DLTBTA	3.000	MACH	5.930	
		AILRON	.000	ELEVON	.000	
		GRID	23.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

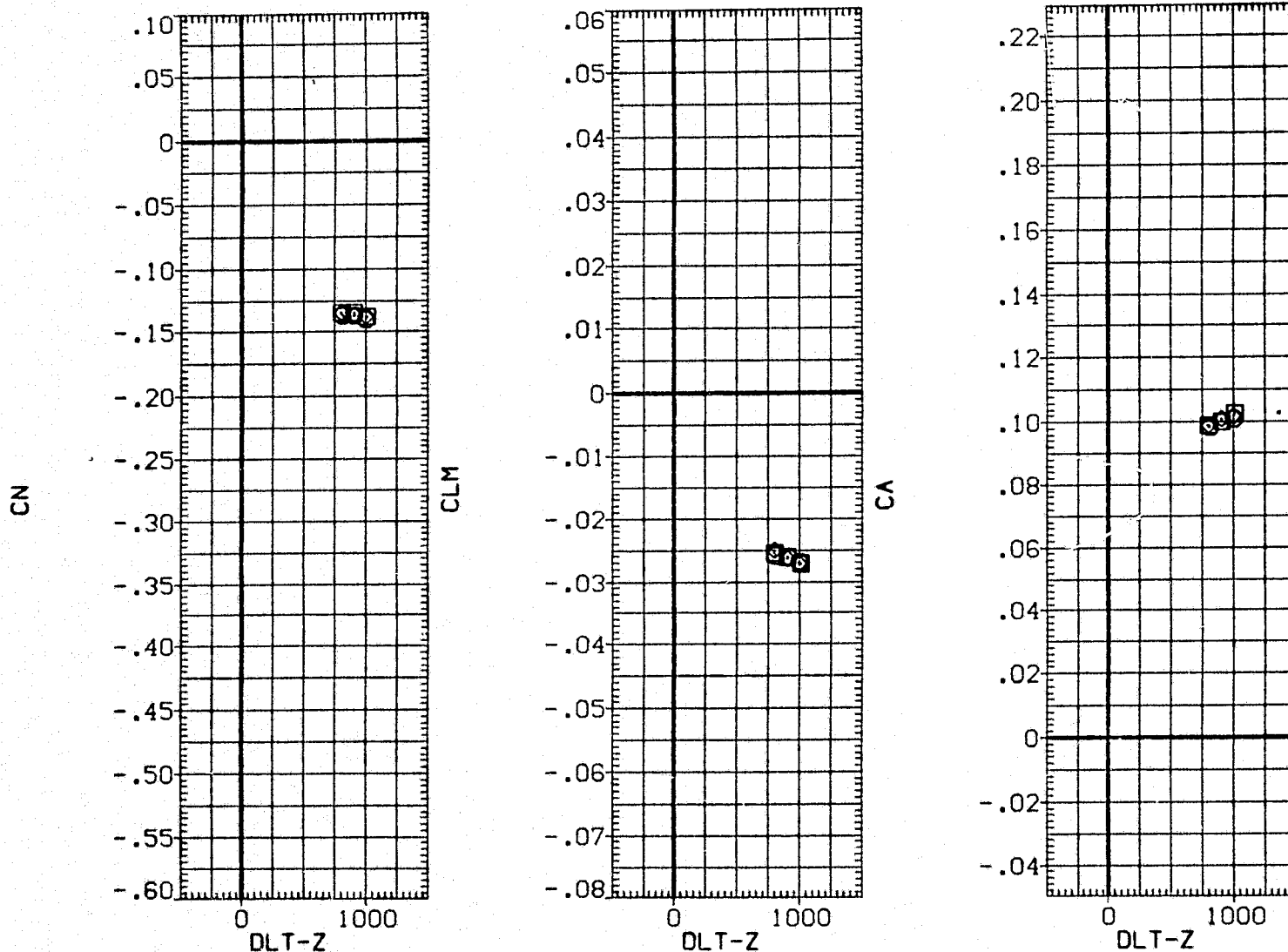


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR330)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	10.000
○	.513	BETA	60.000	DLTALF	-20.000
□	200.550	DLTBTA	3.000	MACH	5.930
◇	400.530	AILRON	.000	ELEVON	.000
		GRID	23.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

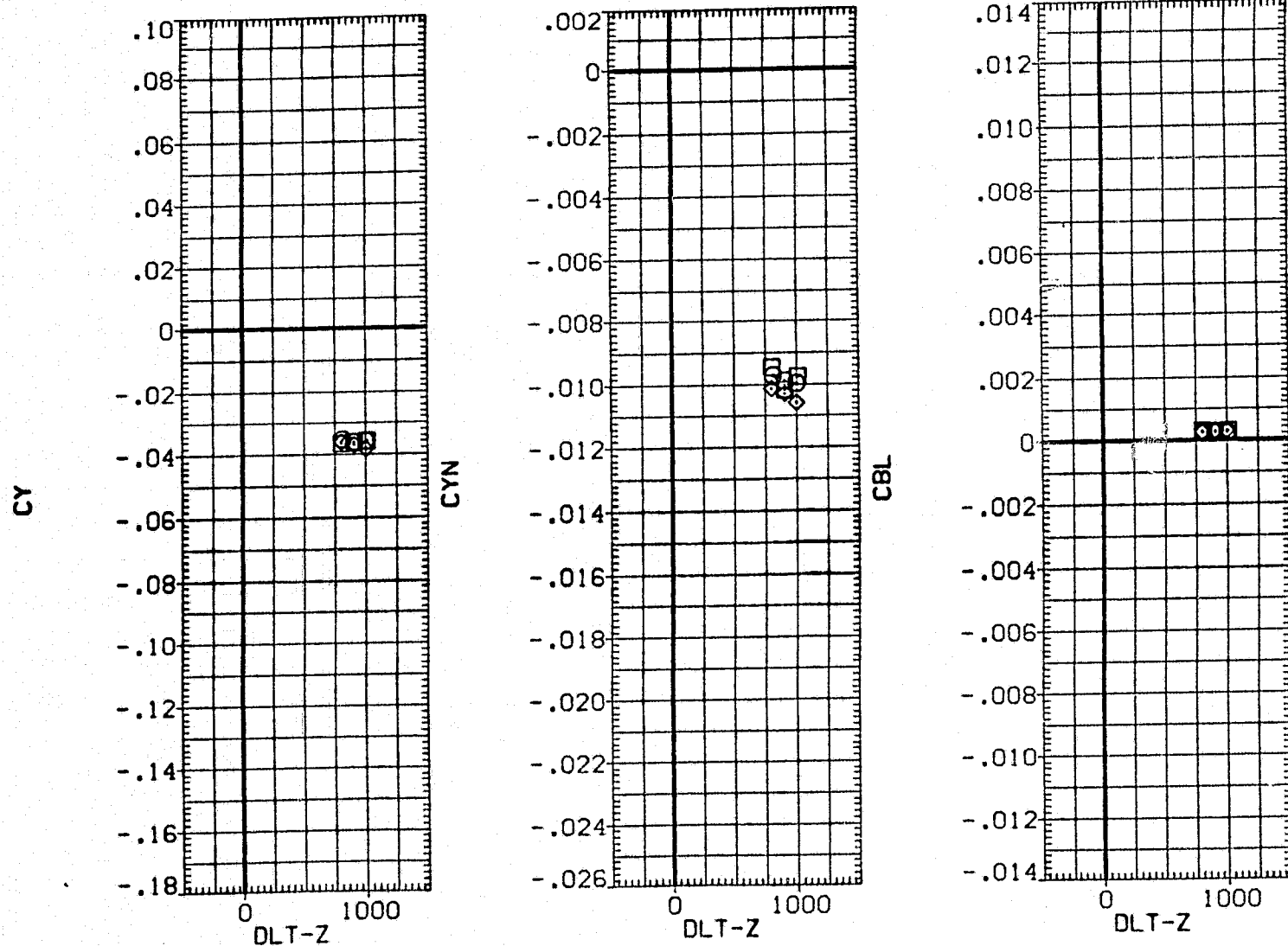


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR331)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	BETA	ALPHA	DLTALF	MACH
○	.474	60.000	3.000	10.000	-10.000	5.930
□	200.540	.000	.000	.000	.000	.000
◇	400.520	27.000	PG	94.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1230.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

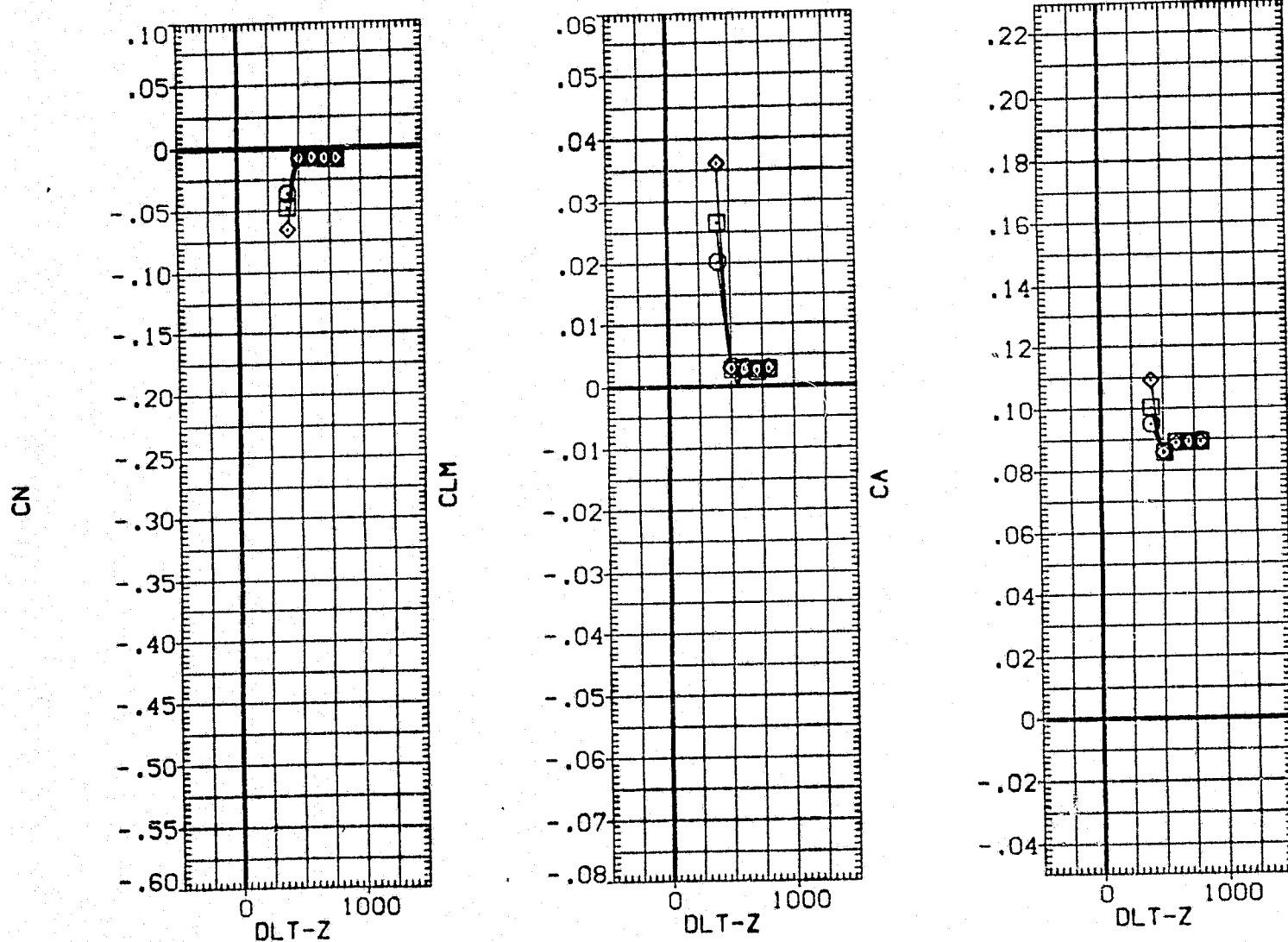


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR331)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.474	60.000	10.000	-10.000
□	200.540	3.000	5.930	.000
◇	400.520	.000	94.000	.000
		GRID		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

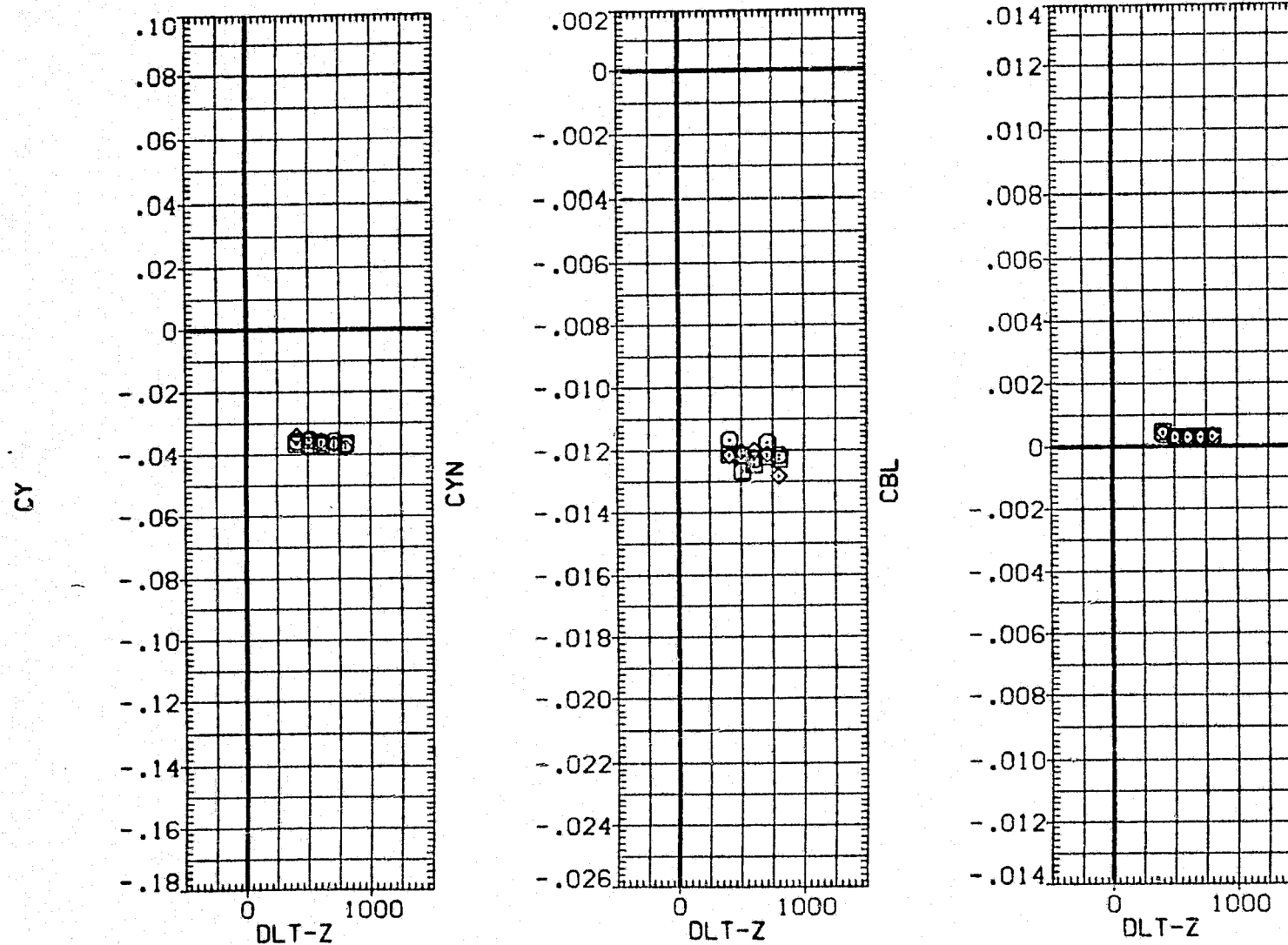


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR332)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.544	60.000	10.000	-20.000
□	200.560	BETA 3.000	MACH 5.930	ELEVON .000
◇	400.540	DLTBT AILRON 27.000	PG 94.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

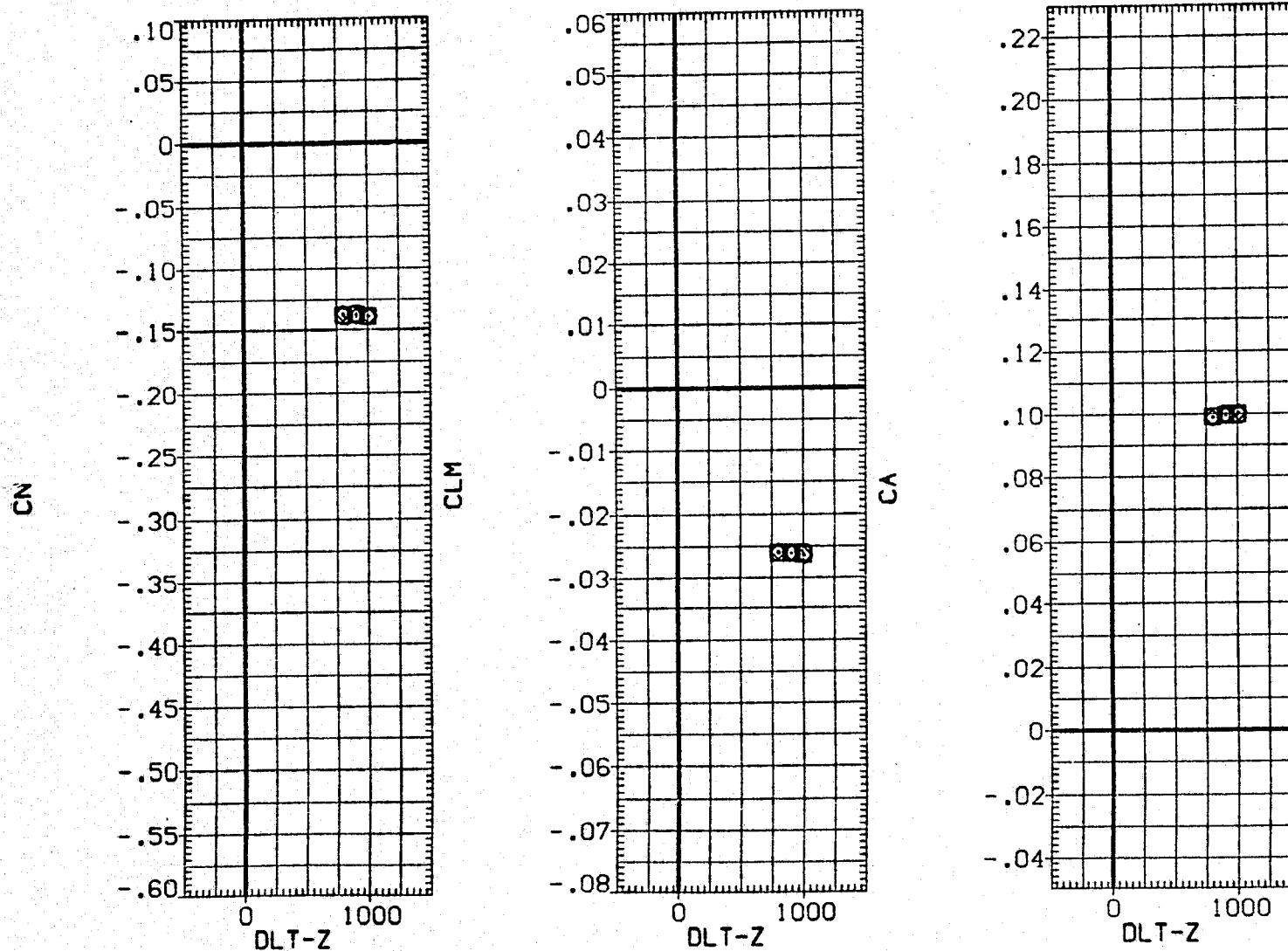


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR332)

SYMBOL		PARAMETRIC VALUES			
○	DLT-X	DLT-Y	60.000	ALPHA	10.000
□	200.560	BETA	3.000	DLTALF	-20.000
◇	400.540	DLTBTA	.000	MACH	5.930
		AIRLON	.000	ELEVON	.000
		GRID	27.000	PG	94.000

REFERENCE INFORMATION		
SREF	2650.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

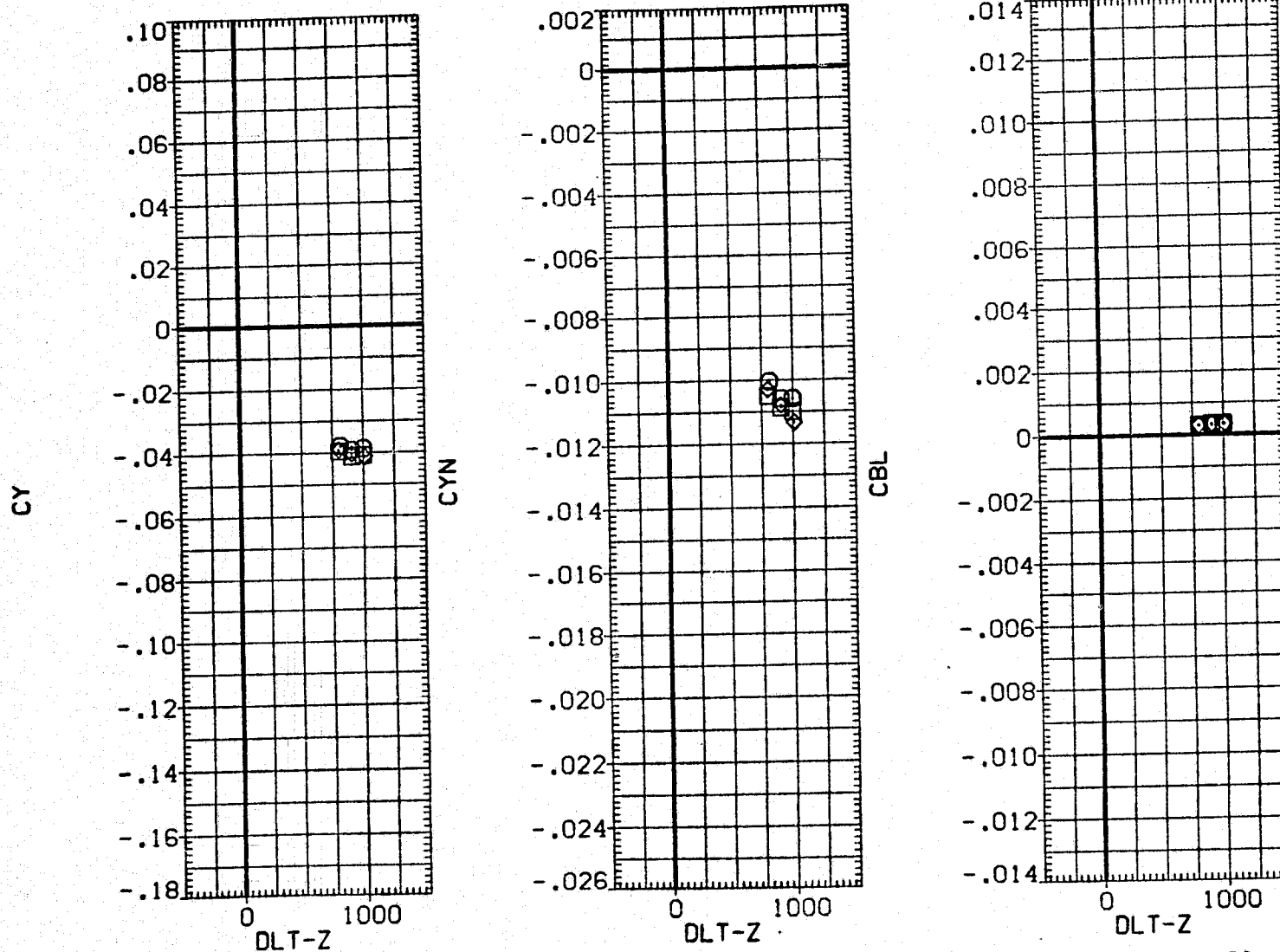


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR333)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.471	DLT-Y	60.000	ALPHA	10.000
□	200.540	BETA	3.000	DLTALF	-10.000
◇	400.610	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	27.000	PO	94.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

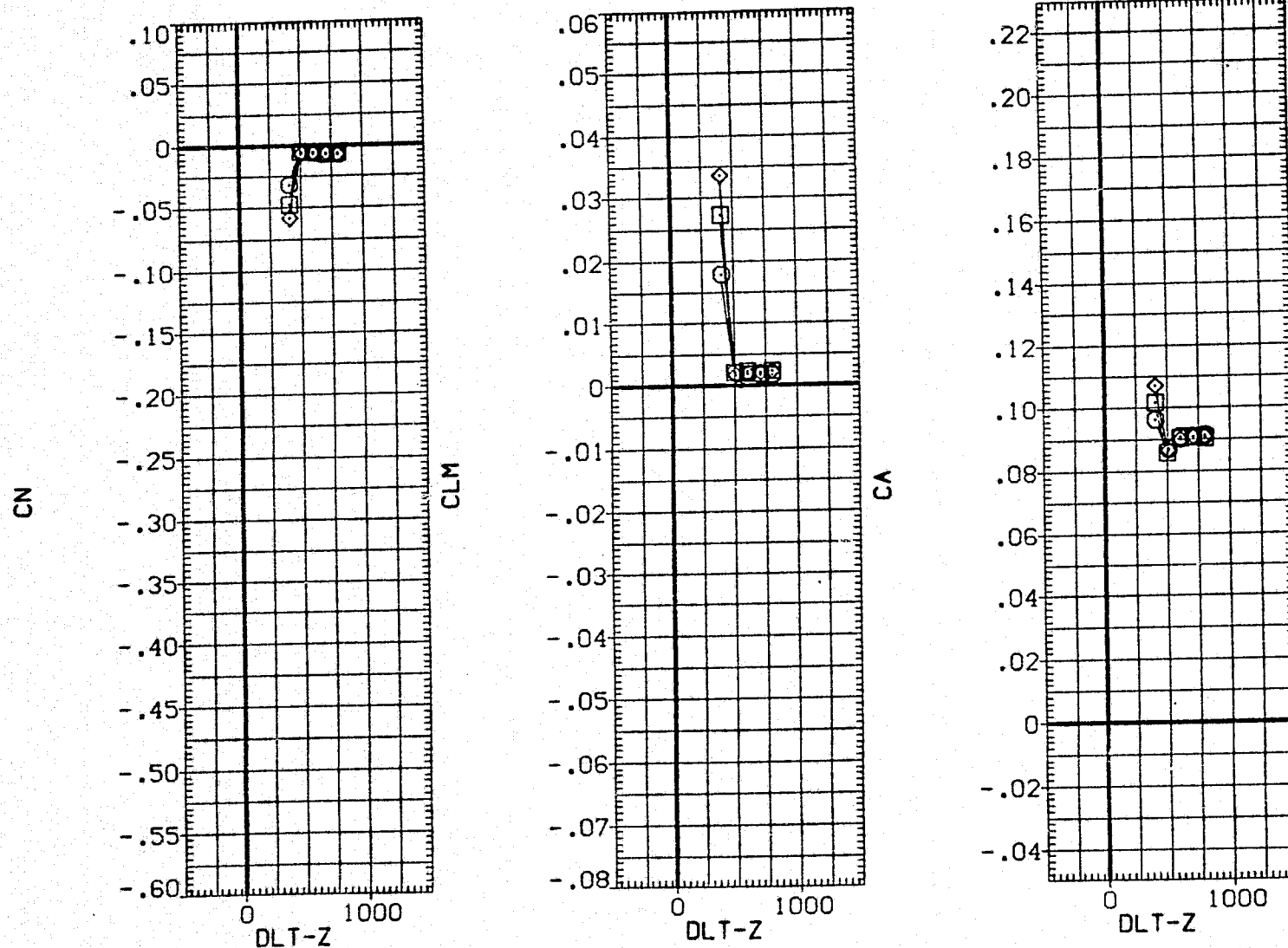


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR333)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	471	DETA	60.000	ALPHA	10.000
□	200.540	DLTBT	3.000	DLTALF	-10.000
◇	400.610	AILRON	3.000	MACH	5.930
		GRID	.000	ELEVON	.000
			27.000	PO	94.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

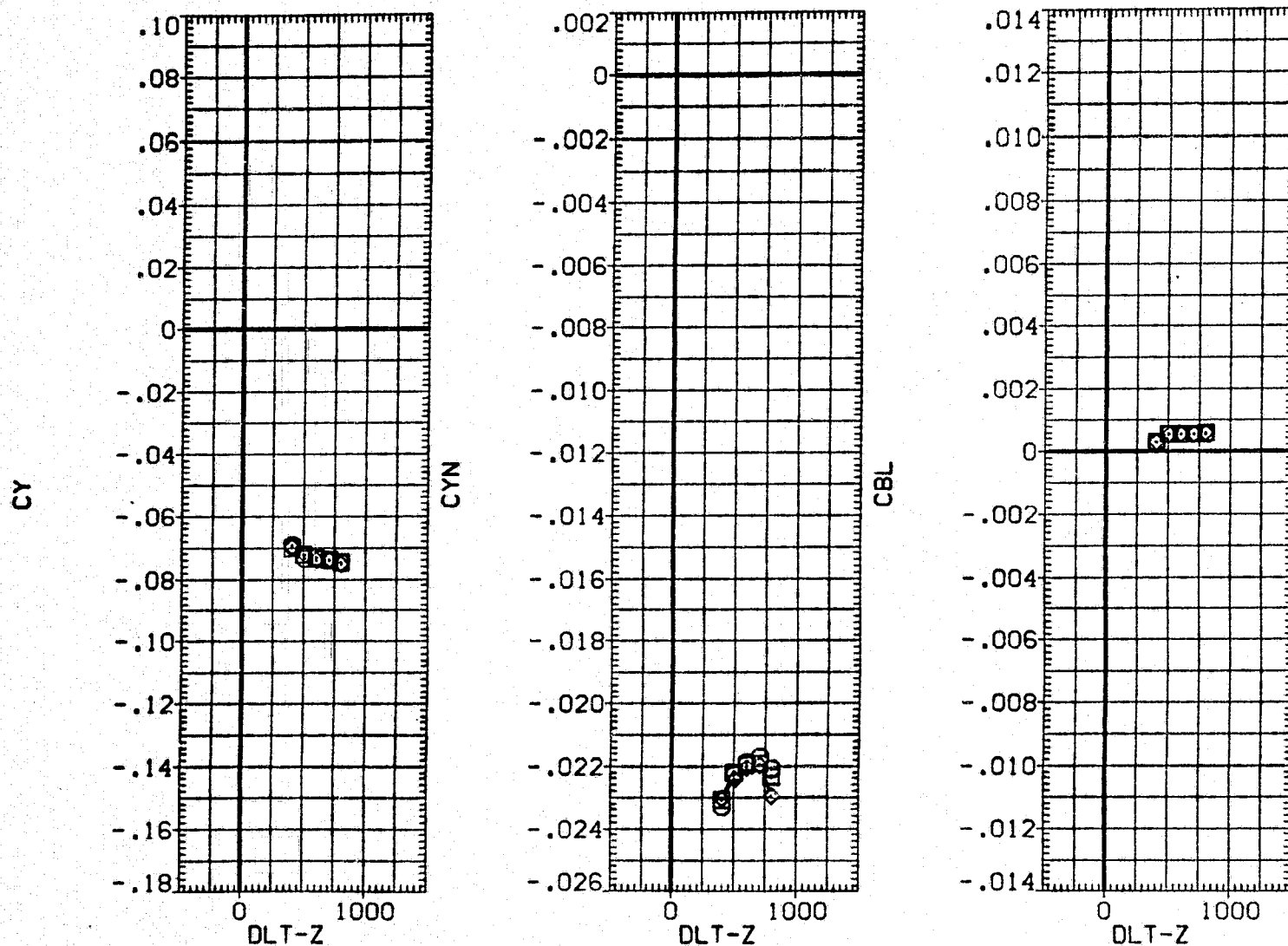


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR334)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.548	200.520	60.000	3.000	5.930	.000
□	.548	200.520	60.000	3.000	5.930	.000
◇	.548	200.520	60.000	3.000	5.930	.000
			27.000	P0	94.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

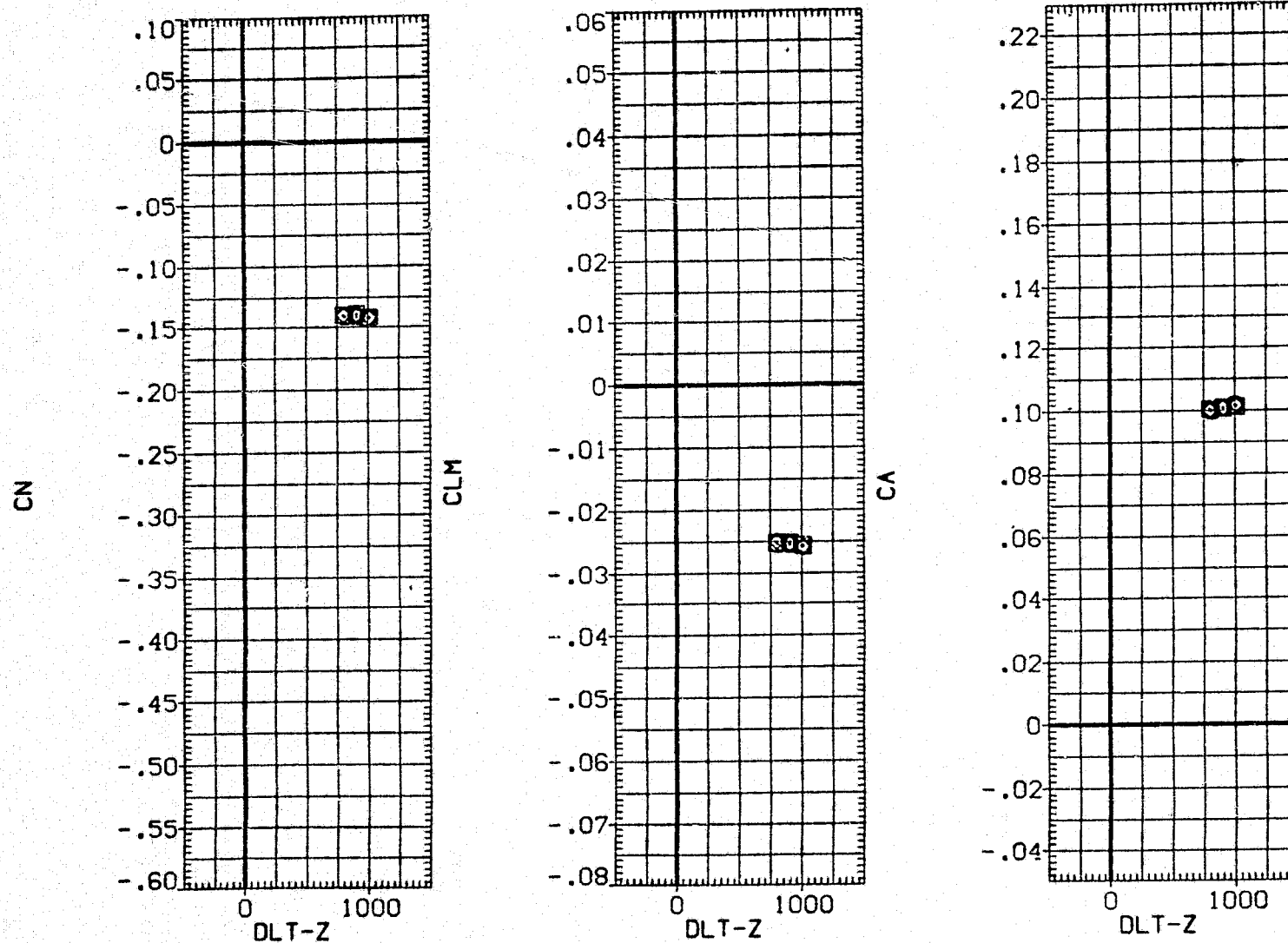


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR334)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	10.000
○	.548	60.000	DLTALF	-20.000	
□	200.520	BETA	3.000	MACH	5.930
◇	400.520	DLTBTA	3.000	ELEVON	.000
		ATLRON	.000	PG	94.000
		GRID	27.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

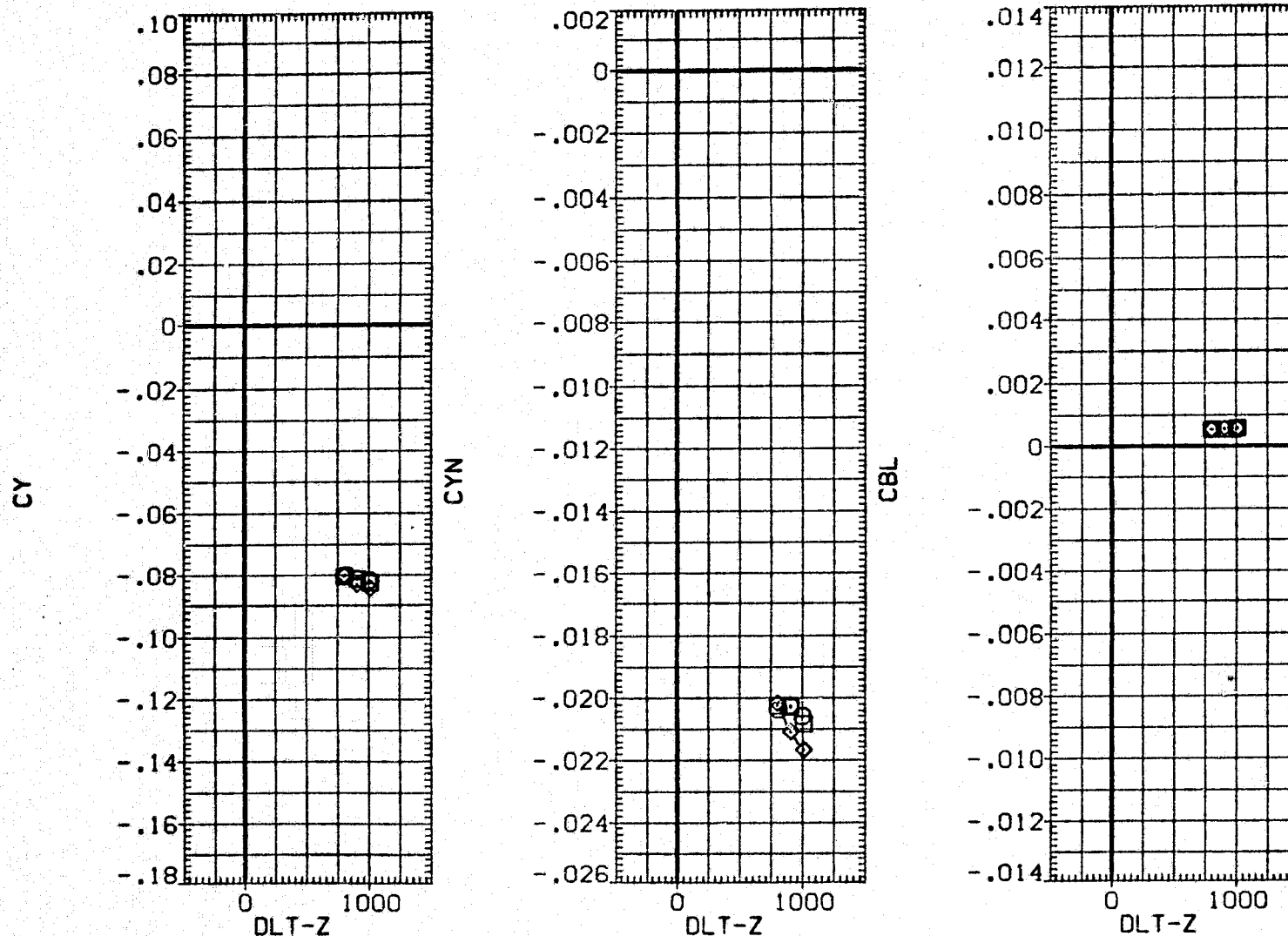


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR251)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.554	60.000	DLTALF	-10.000	
□	200.410	3.000	MACH	.000	
		.000	ELEVON	5.930	
		.000		.000	
		8.000			

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

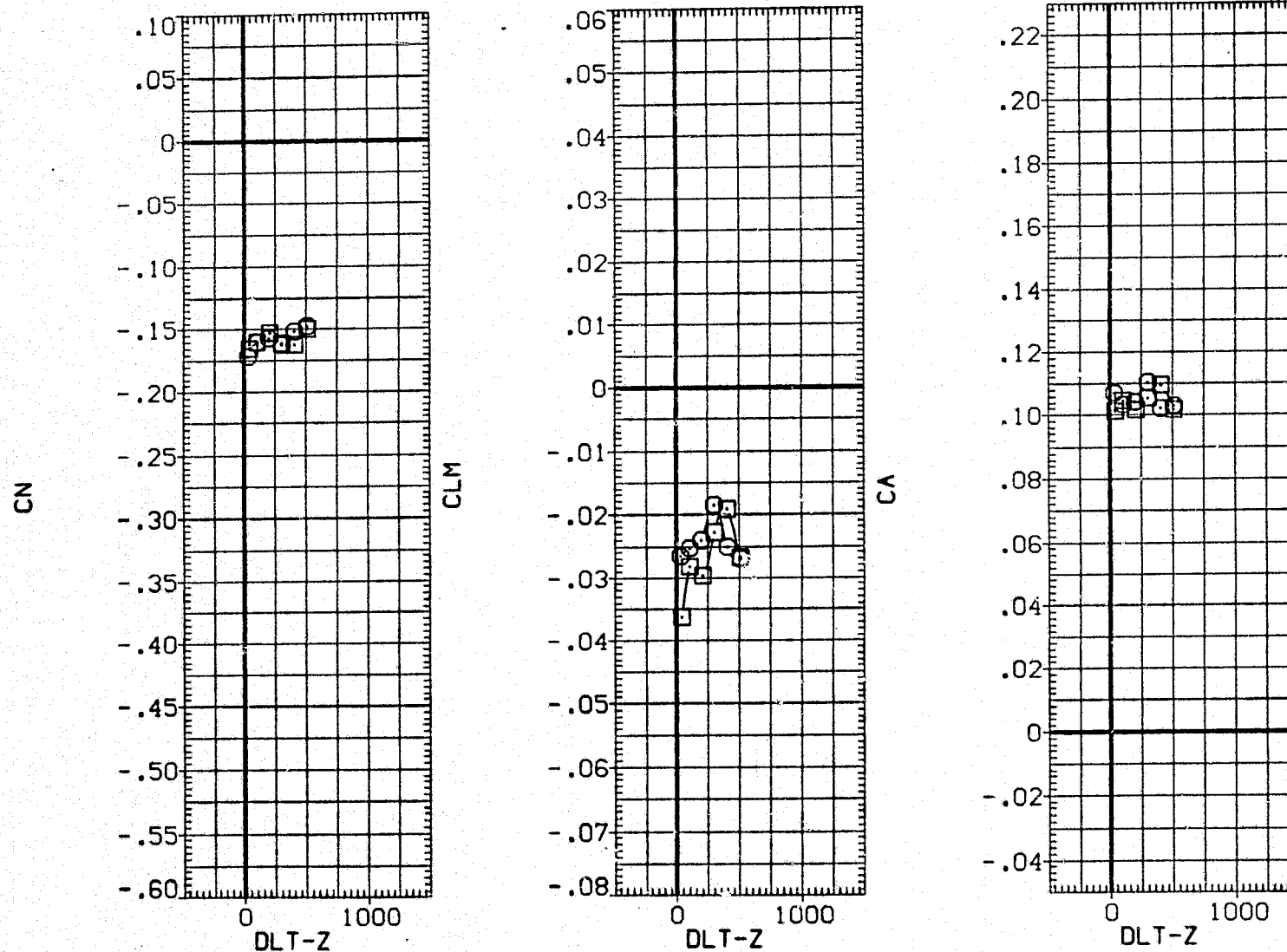


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR251)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	60.000	ALPHA	-10.000	
○	.554	BETA	3.000	DLTALF	.000	
□	200.410	DLTBTA	.000	MACH	5.930	
		AILRON	.000	ELEVON	.000	
		GRID	8.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

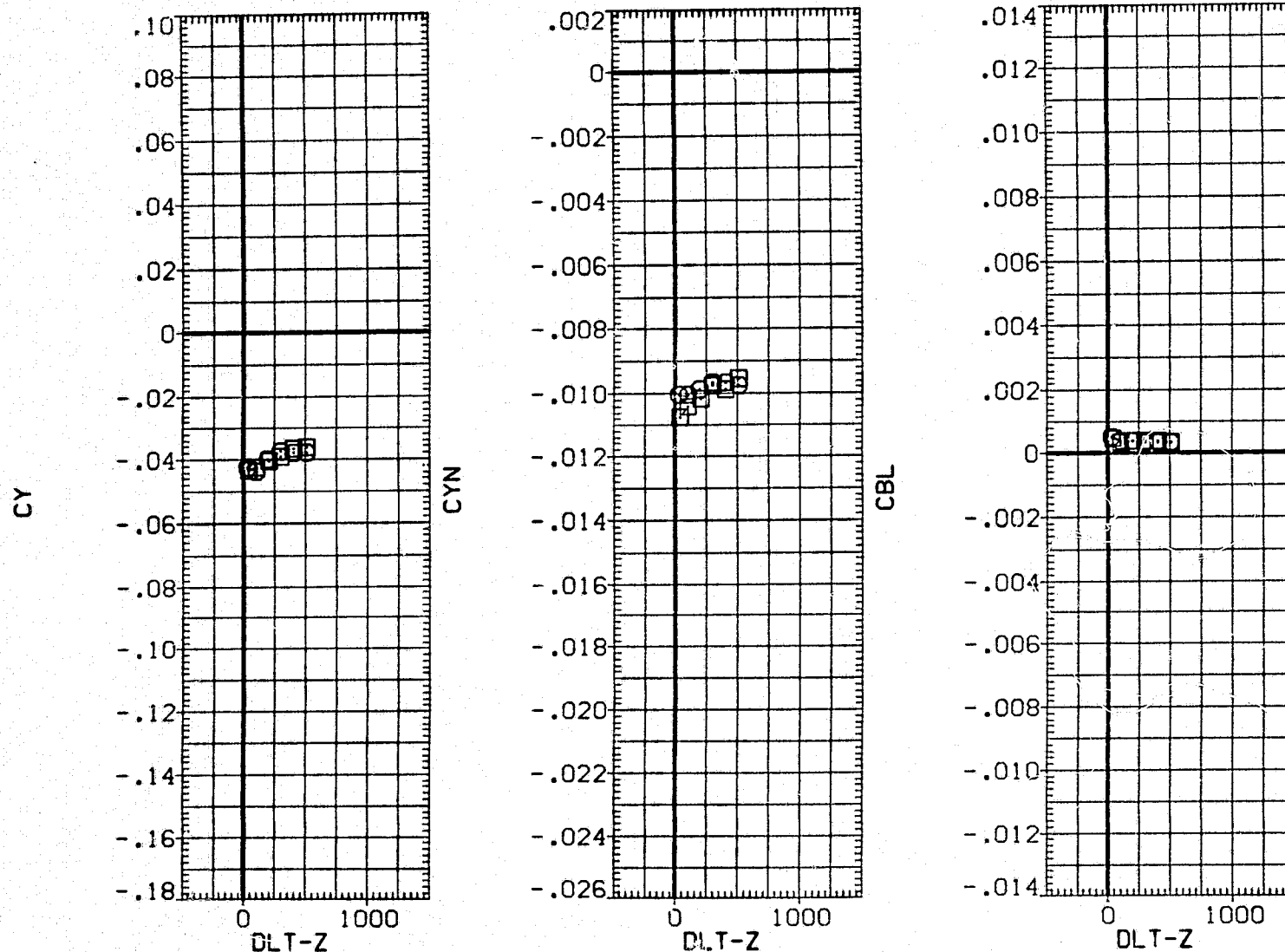


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR252)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.418	60.000	-10.000	-10.000
□	200.490	3.000	-10.000	5.930
◇	400.500	.000	5.930	.000
	DLTBT	.000	ELEVON	
	ATLRON	.000		
	GRID	8.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

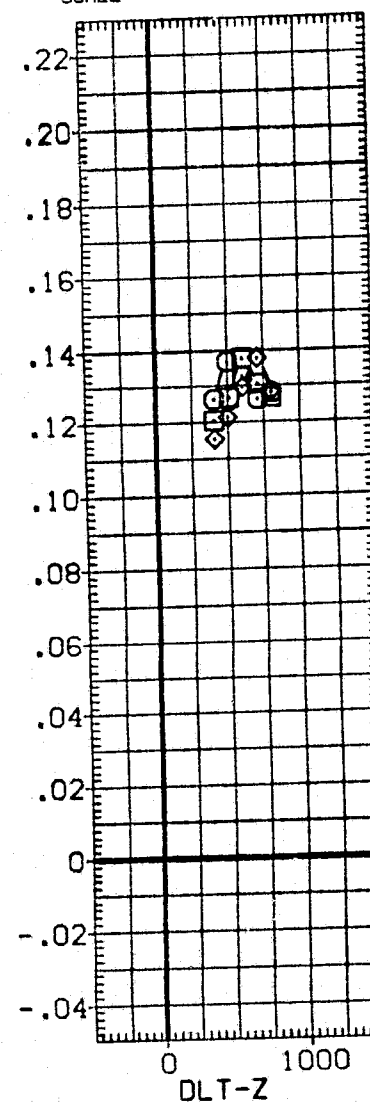
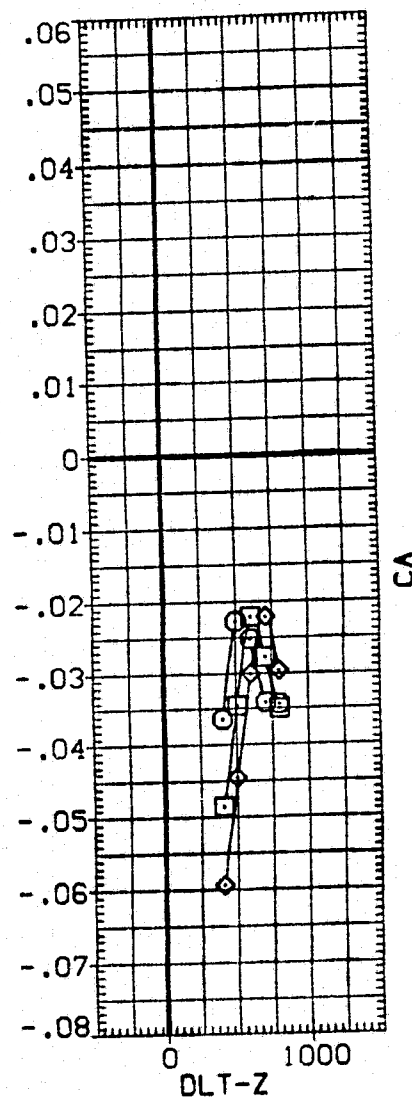
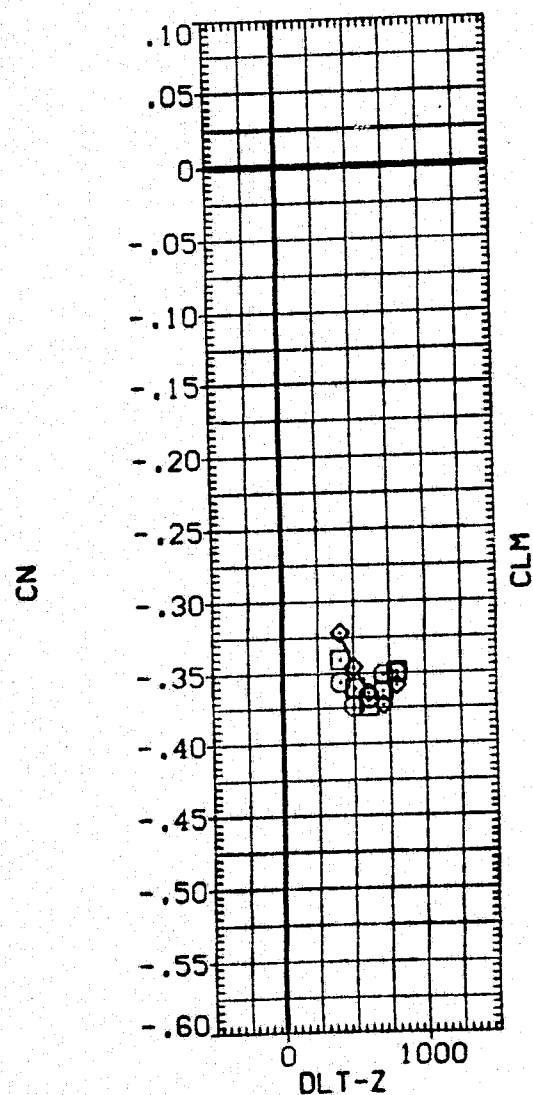


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR252)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.418	60.000	ALPHA	-10.000	
	200.490	BETA	3.000	DLTALF	-10.000
	400.500	DLTBTA	.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	8.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1230.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

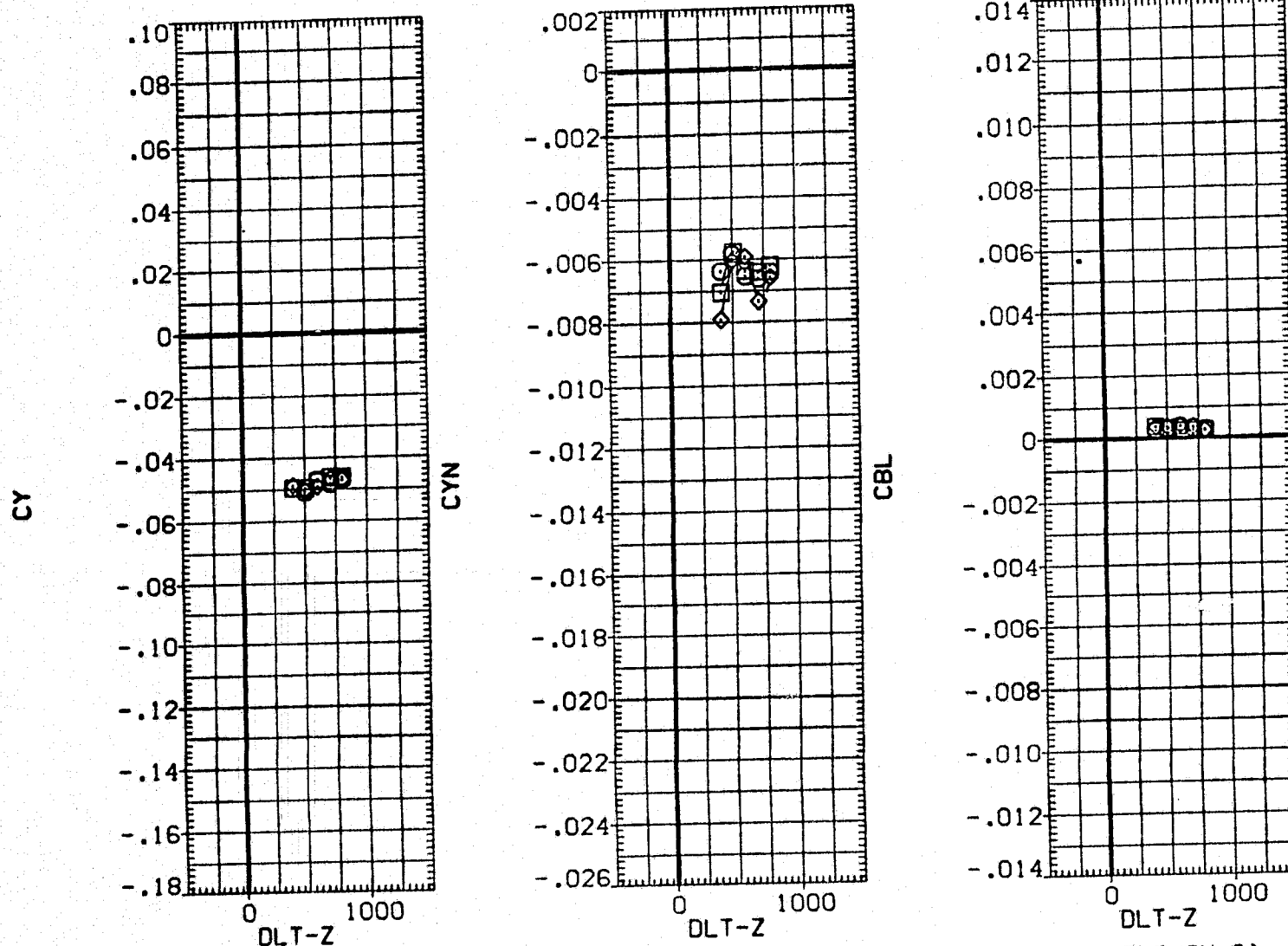


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR253)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.586	BETA	60.000	ALPHA
□	200.590	DLTBTA	3.000	DLTALF
		AIRLON	.000	MACH
		GRID	8.000	ELEVON

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

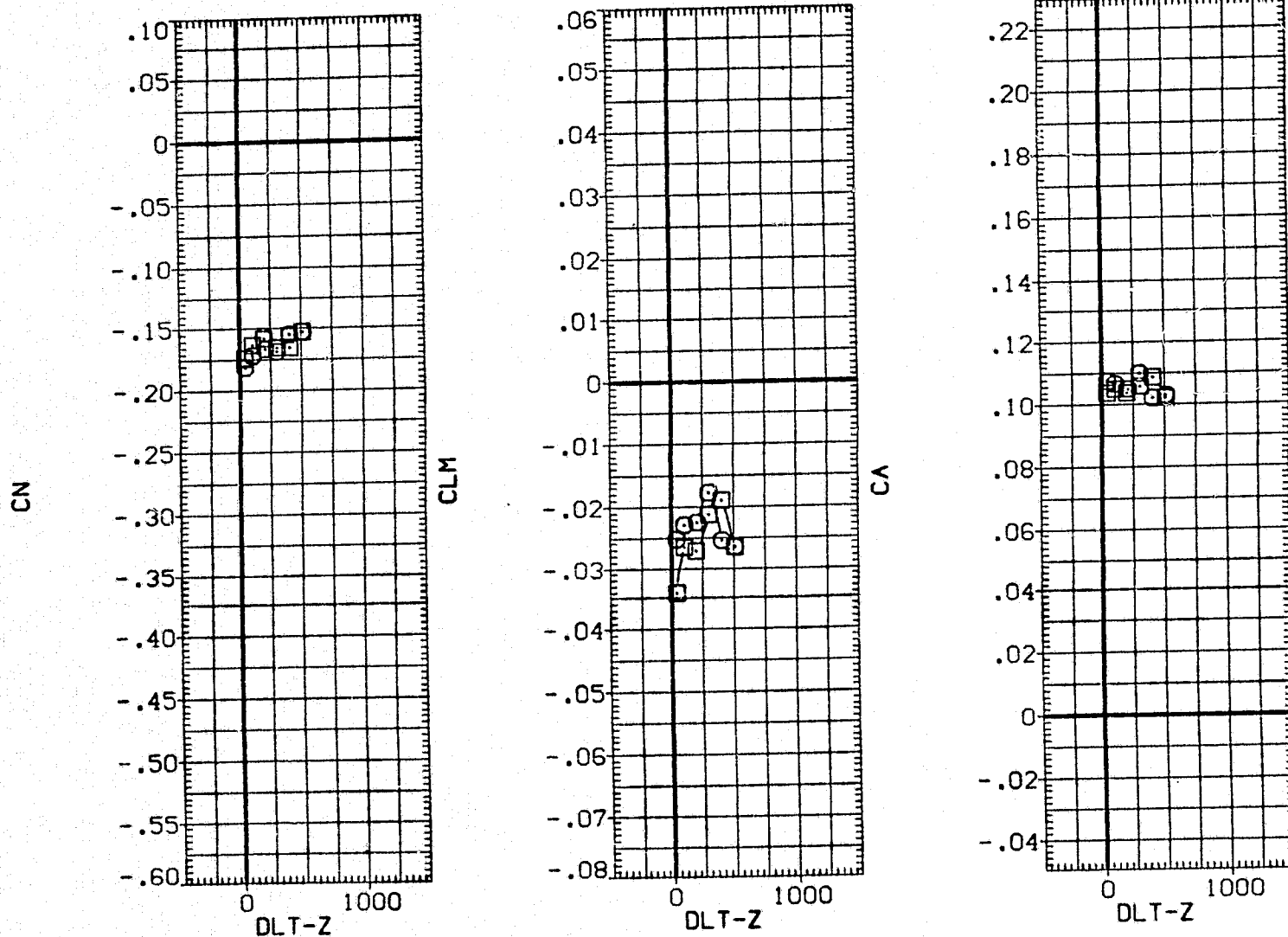


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR253)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.586		60.000		5.930	.000
□	200.590		3.000			
			DLTBTA			
			AILRON			
			GRID			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

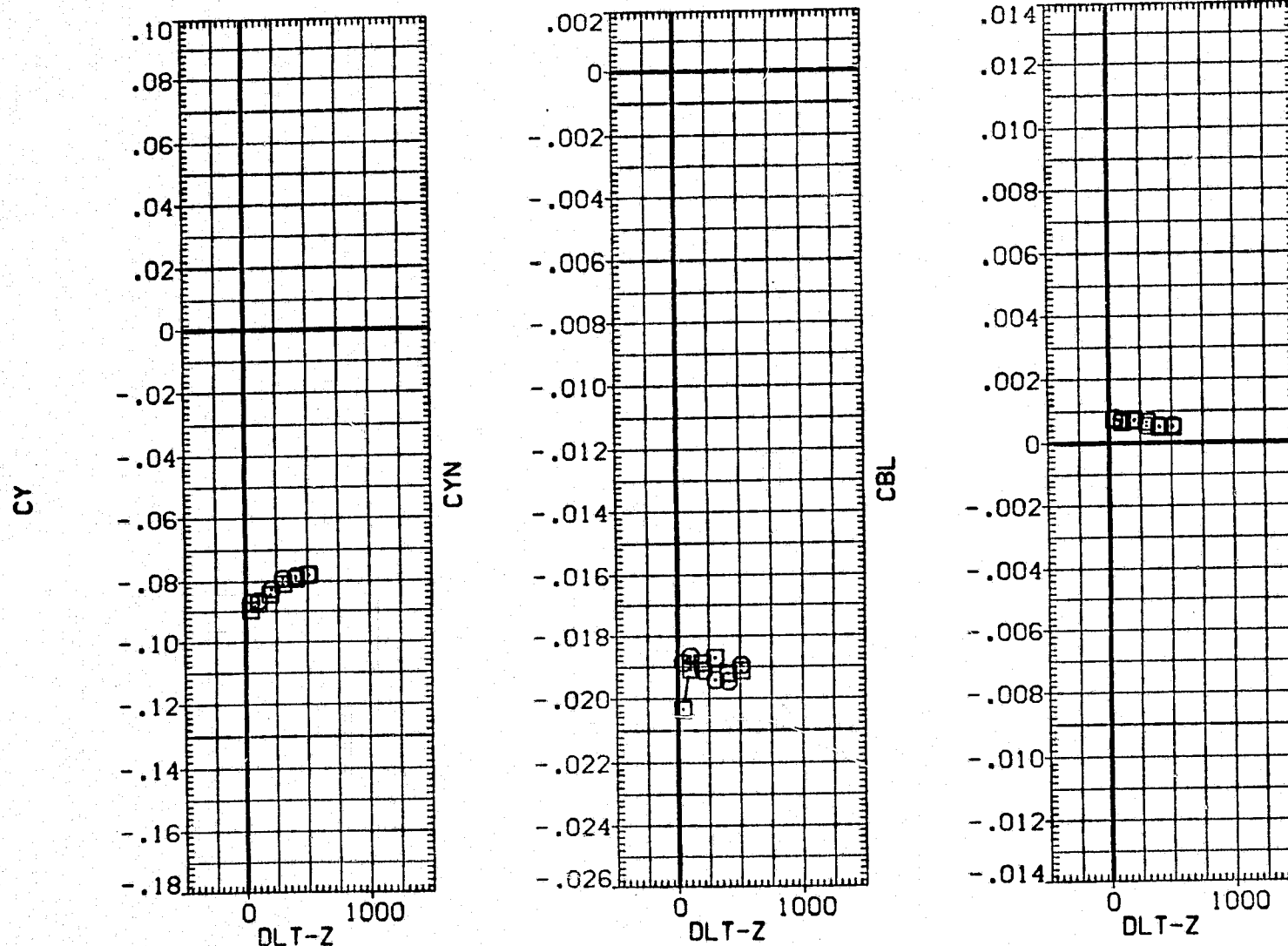


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR254)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
○	.524	60.000	3.000	-10.000	-10.000
□	200.500	BETA	3.000	5.930	.000
◇	400.490	DLTBTA	.000	8.000	
		AILRON			
		GRID			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

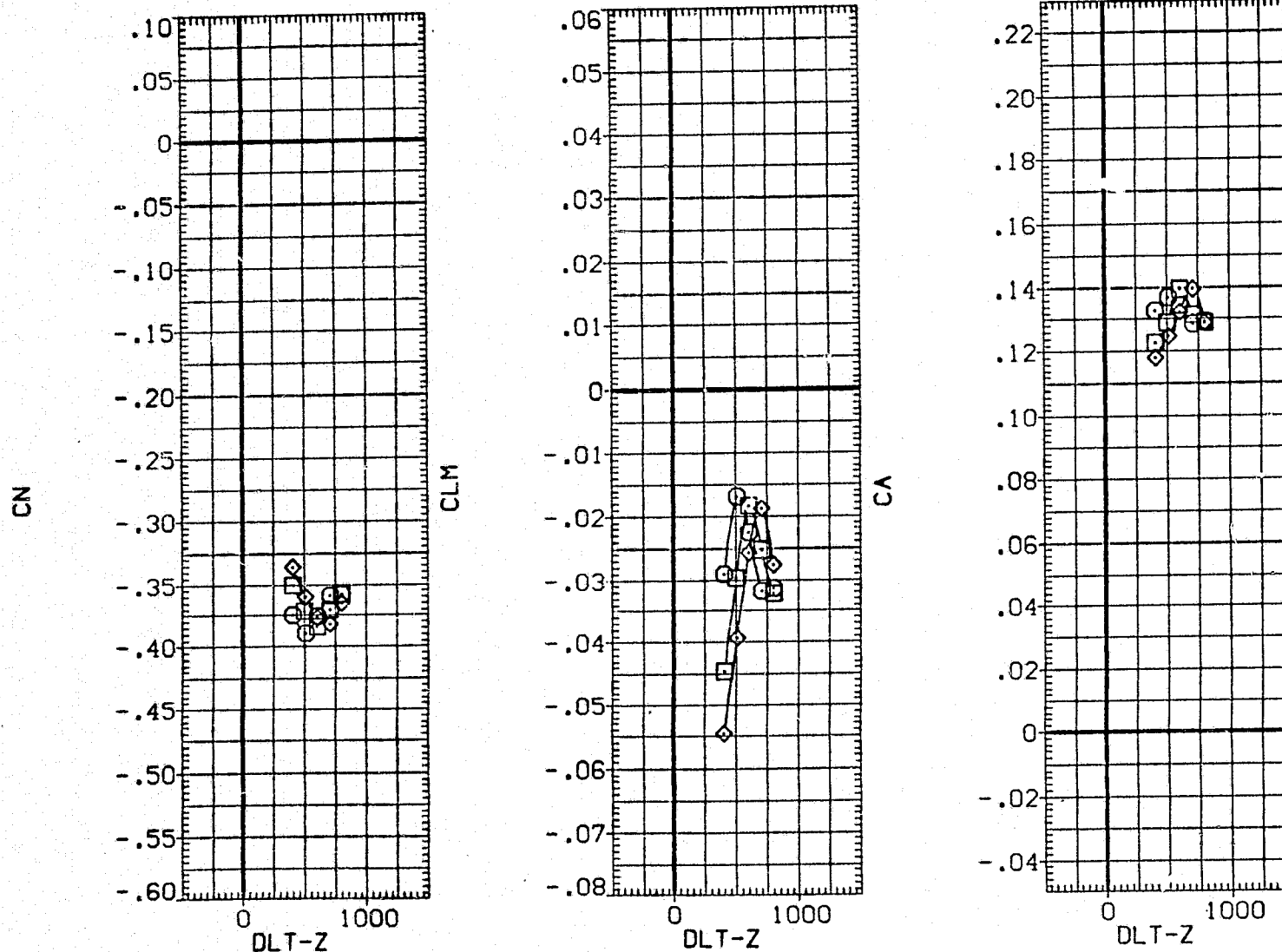


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR254)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.524		60.000	ALPHA -10.000
□	200.500	BETA	3.000	DLTALF -10.000
◇	400.490	DLTBTA	3.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	8.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

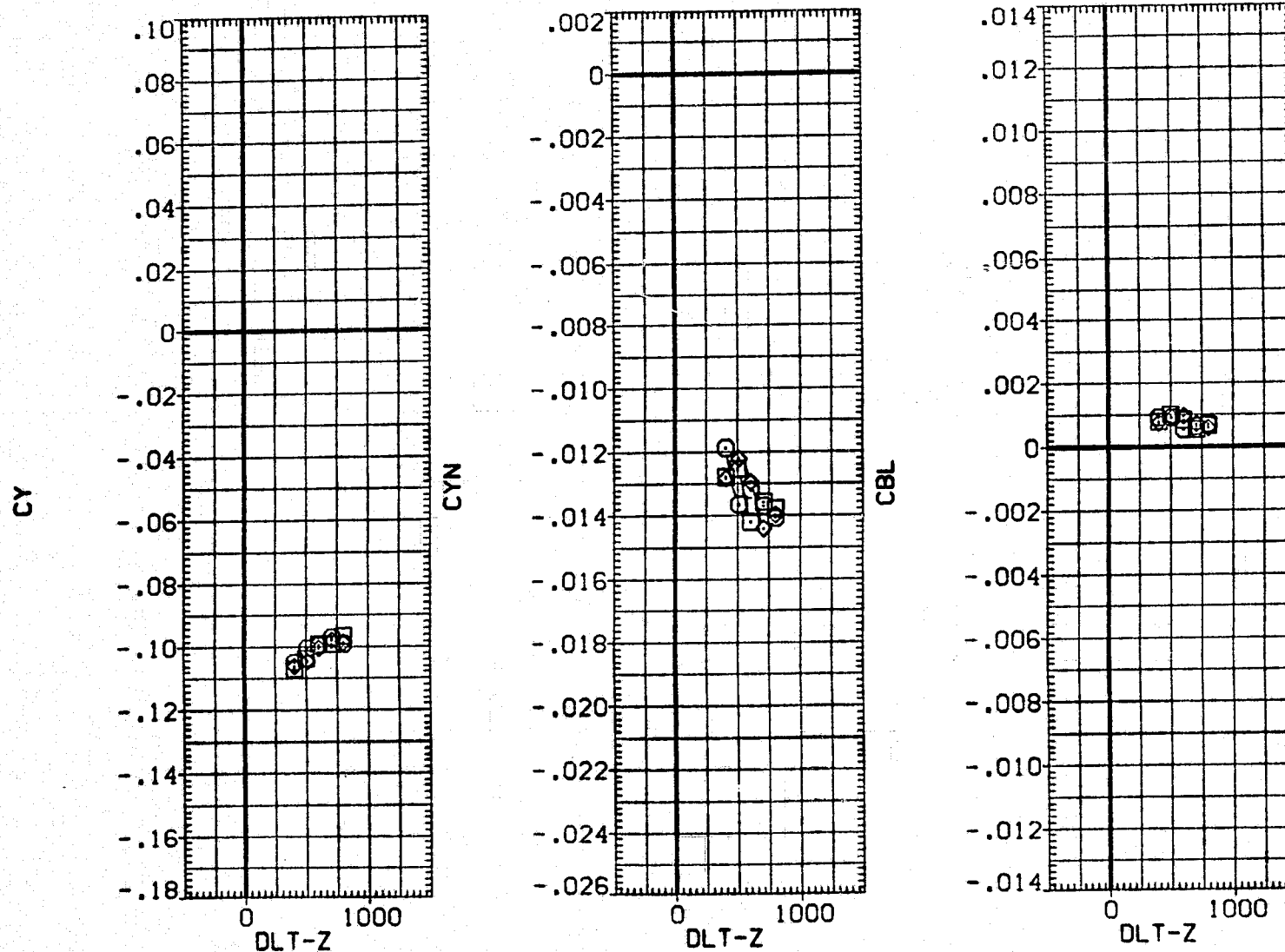


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR255)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-X	DLT-Y	60.000	ALPHA	
○	.436	BETA	.000	DLTALF	.000
□	200.430	DLTBTA	.000	MACH	5.930
◇	400.510	AIRLON	.000	ELEVON	.000
		GRID	.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

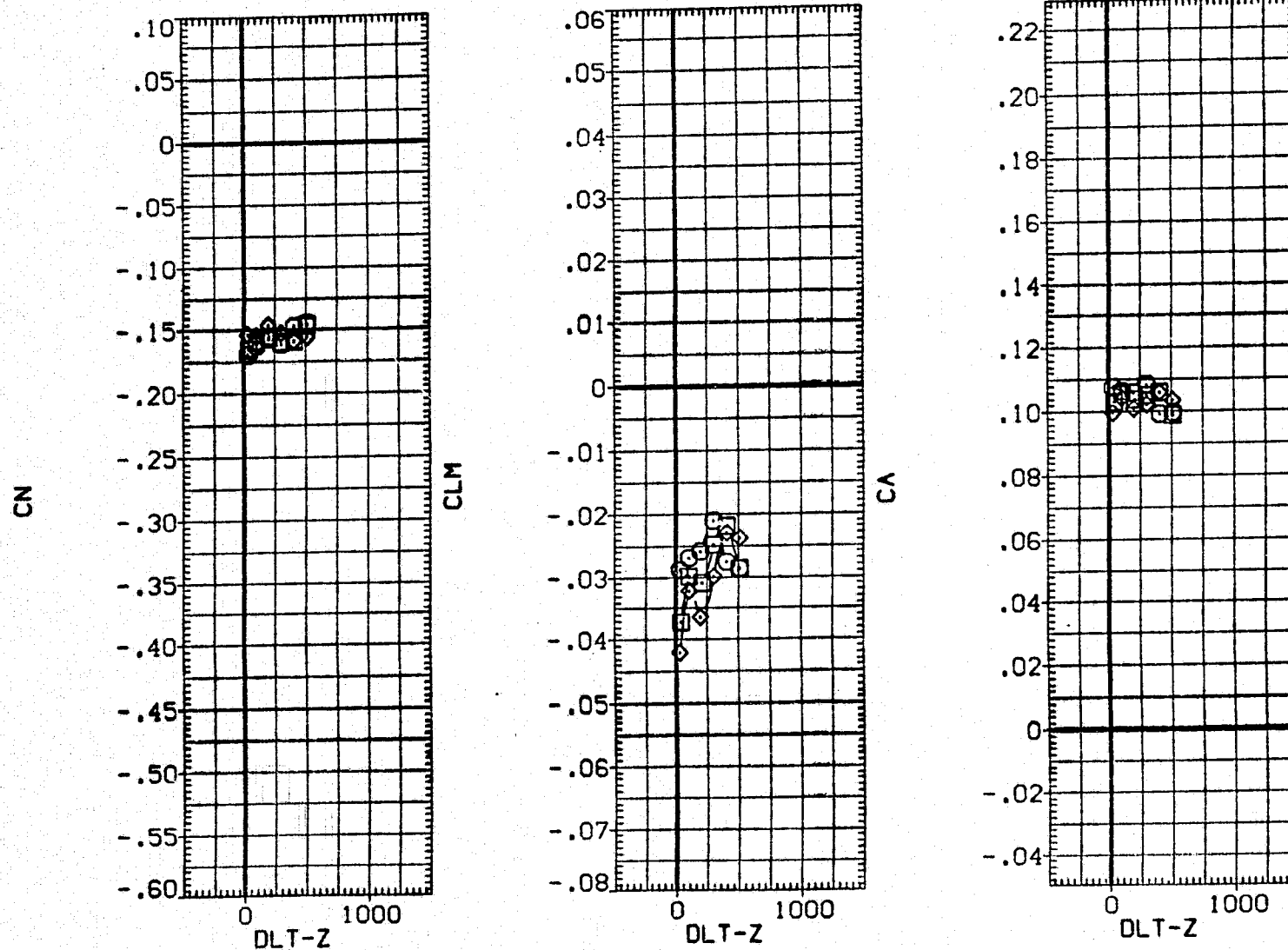


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR255)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-Y	DLT-Z	ALPHA	DLTALF	ELEVON
○	.436	60.000	-10.000	.000	.000
□	200.430	.000	.000	.000	.000
◇	400.510	.000	.000	.000	.000
		GRID	9.000		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

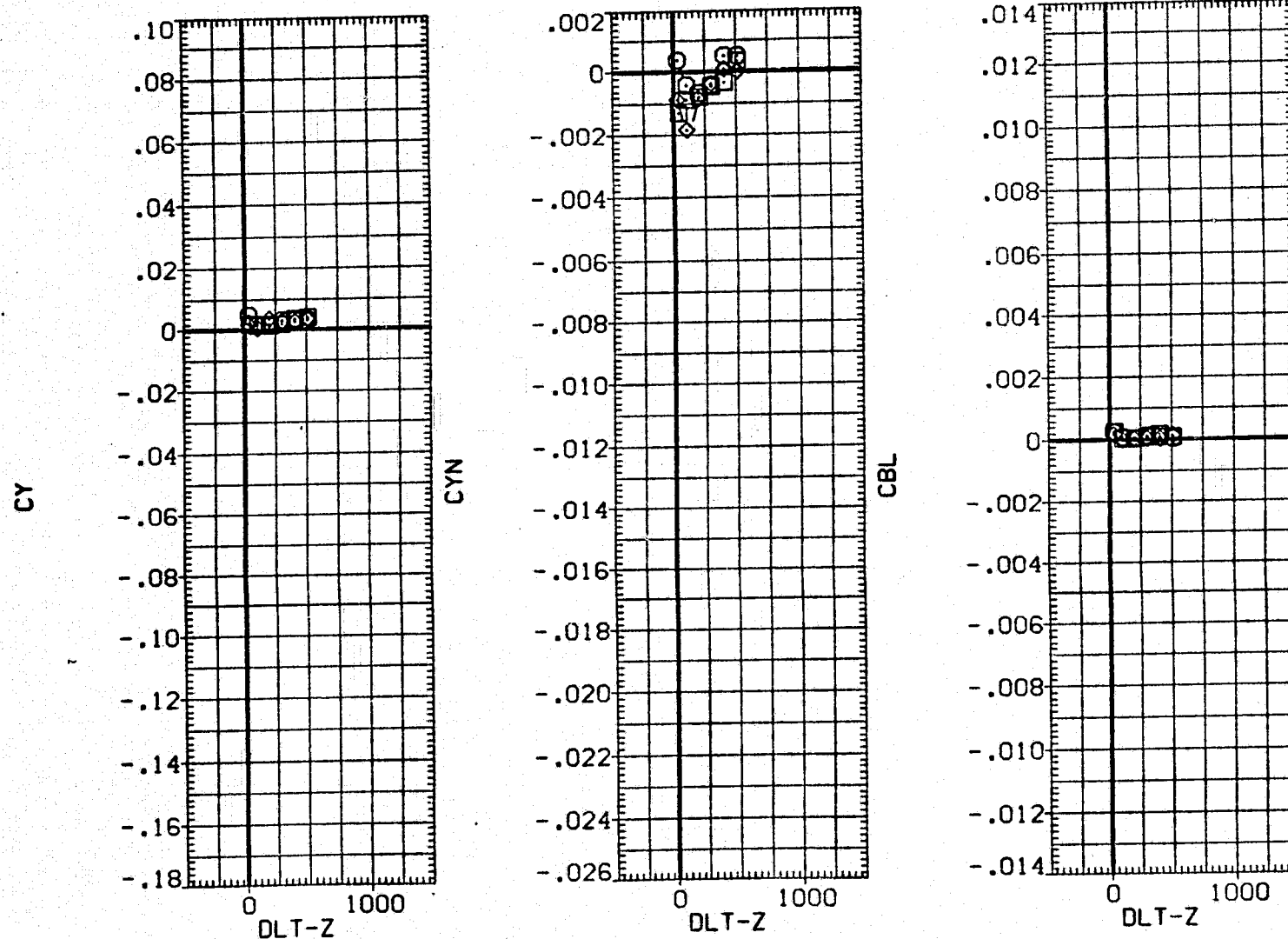


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR256)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.378	60.000	ALPHA	-10.000
□	200.420	.000	DLTALF	-10.000
◇	400.390	.000	MACH	5.930
		.000	ELEVON	.000
		9.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

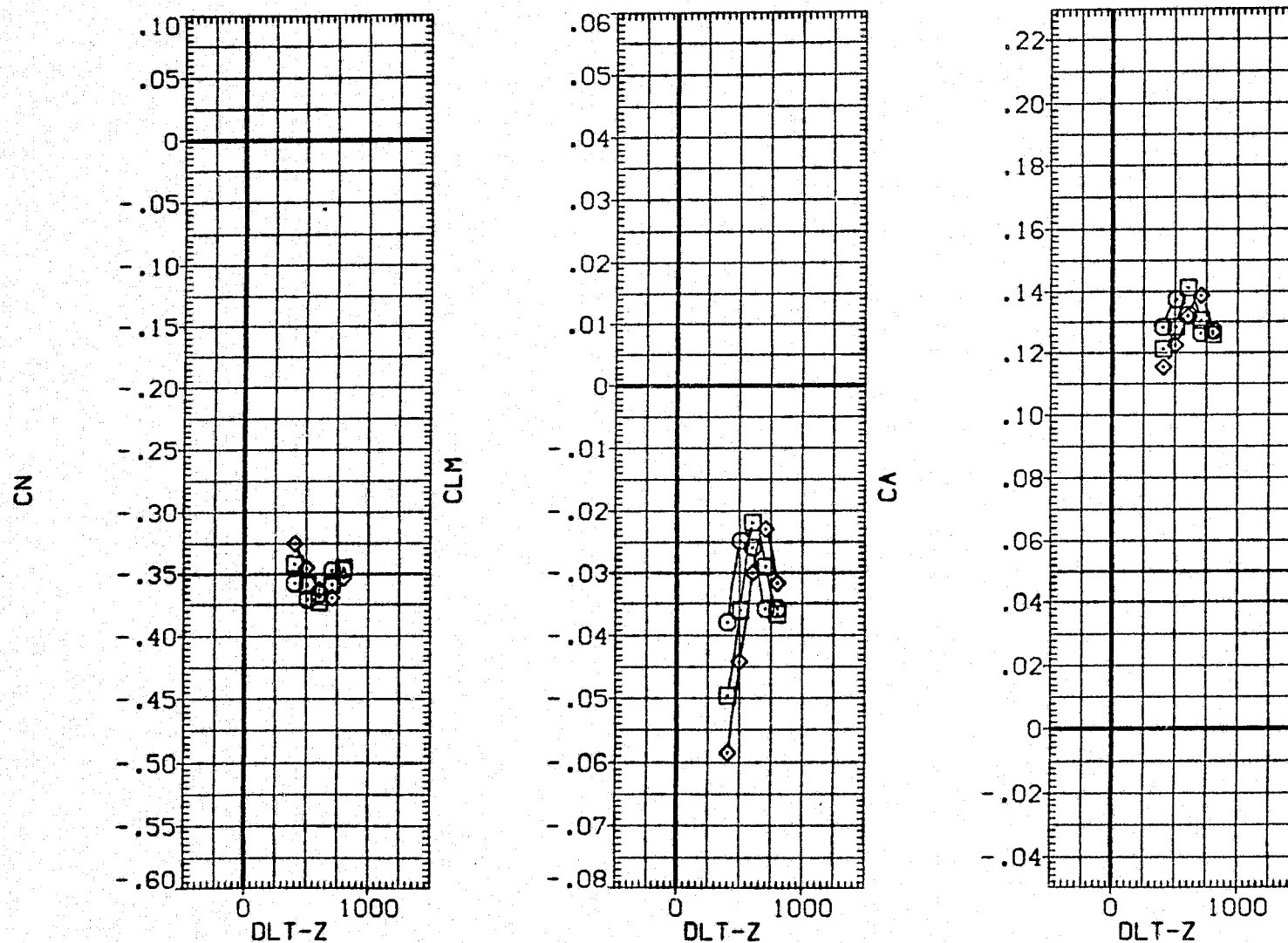


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR256)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.378	60.000	ALPHA	-10.000
□	200.420	BETA	DLTALF	-10.000
◇	400.390	DLTBTA	MACH	5.930
		AILRON	ELEVON	.000
		GRID		9.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

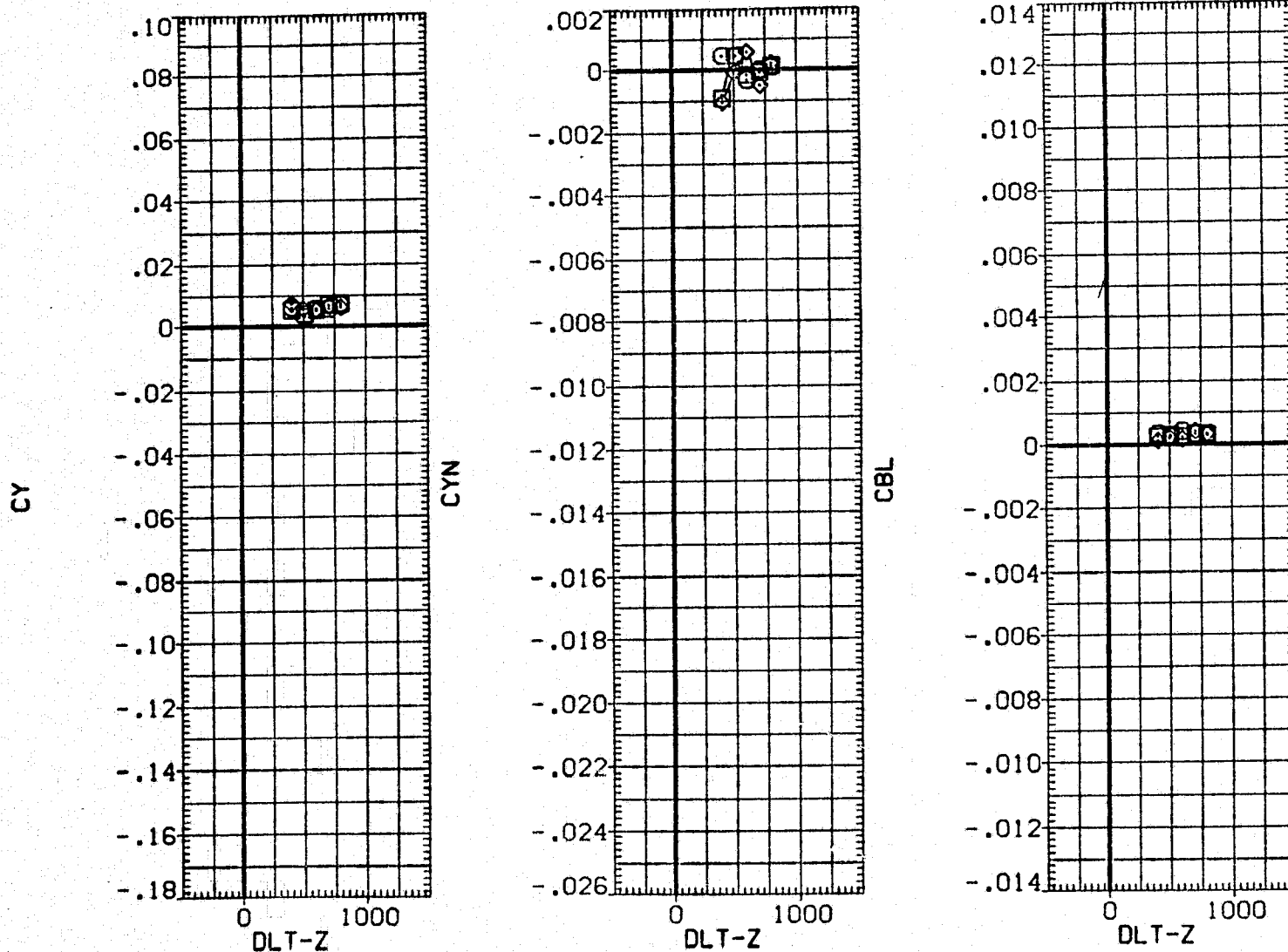


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR257)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
	.370	60.000	ALPHA	-10.000
○	200.370	.000	DLTALF	.000
□		3.000	MACH	5.930
		.000	ELEVON	.000
		9.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

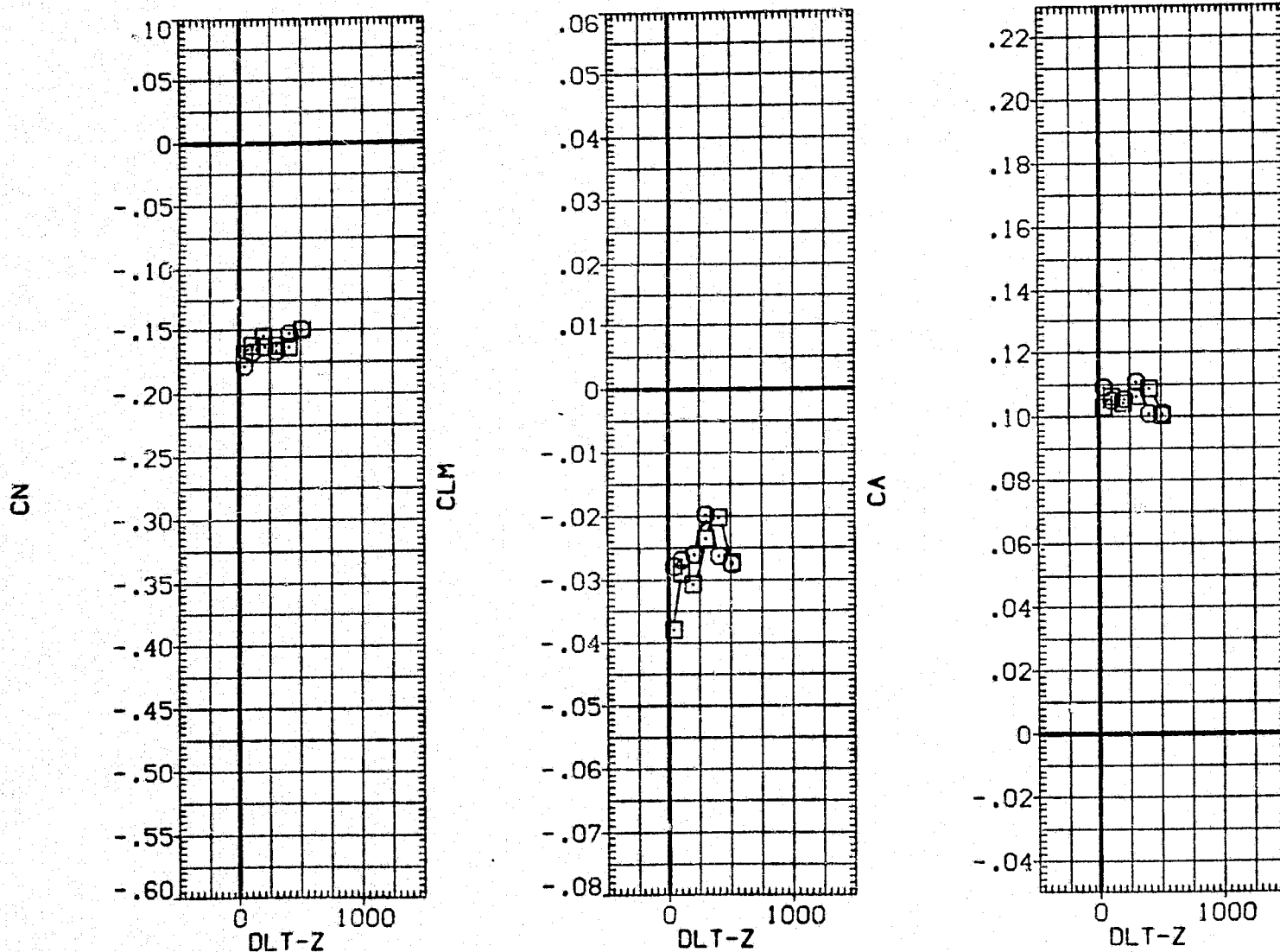


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR257)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	SO.000	ALPHA	-10.000	
○	.370		.000	DLTALF	.000	
□	200.370		3.000	MACH	5.930	
			.000	ELEVON	.000	
			9.000			

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

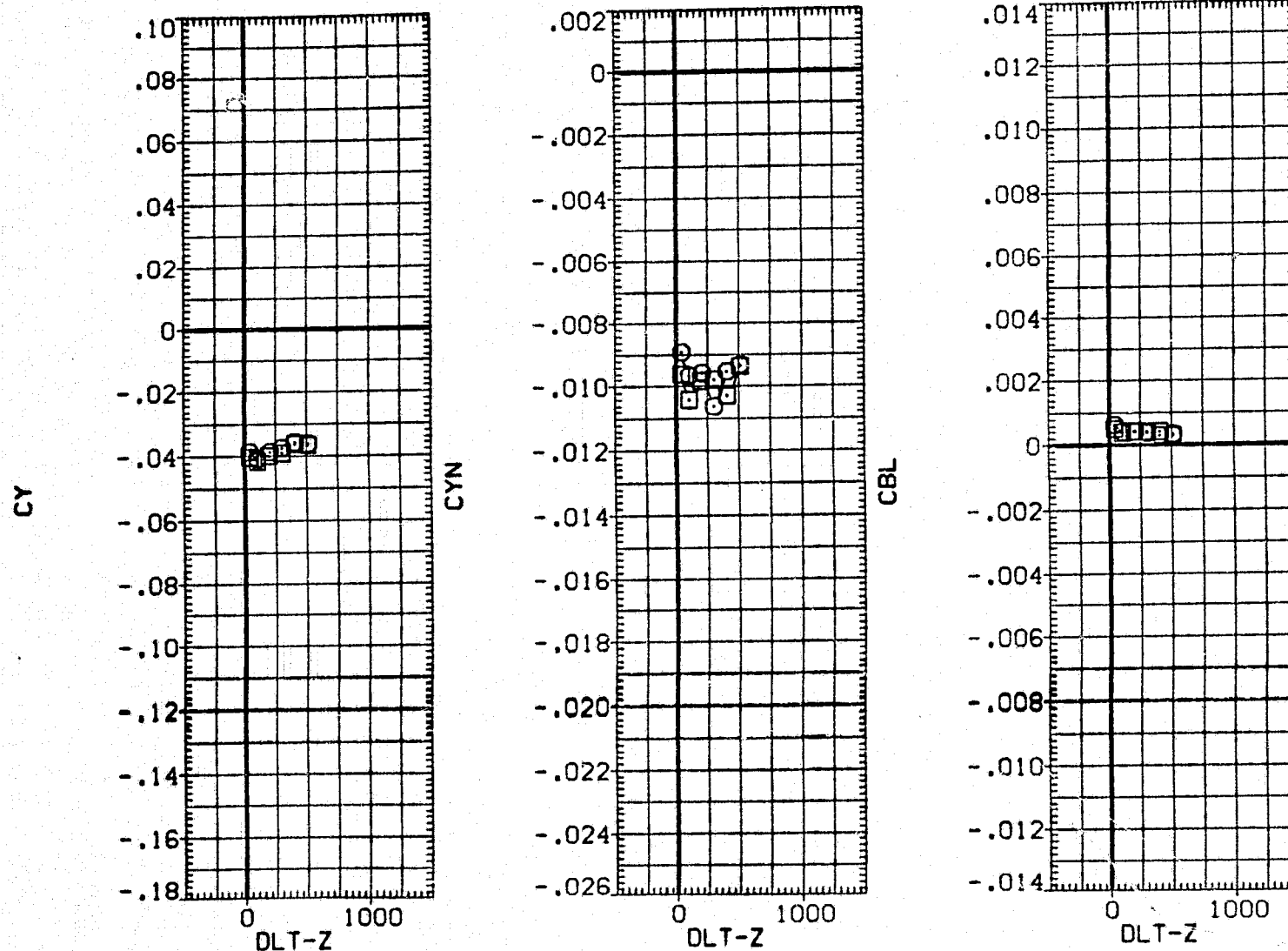
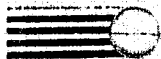


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)



AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR258)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.476		60.000	-10.000	
□	200.420	BETA	.000	DLTALF	-10.000
◇	400.360	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	9.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

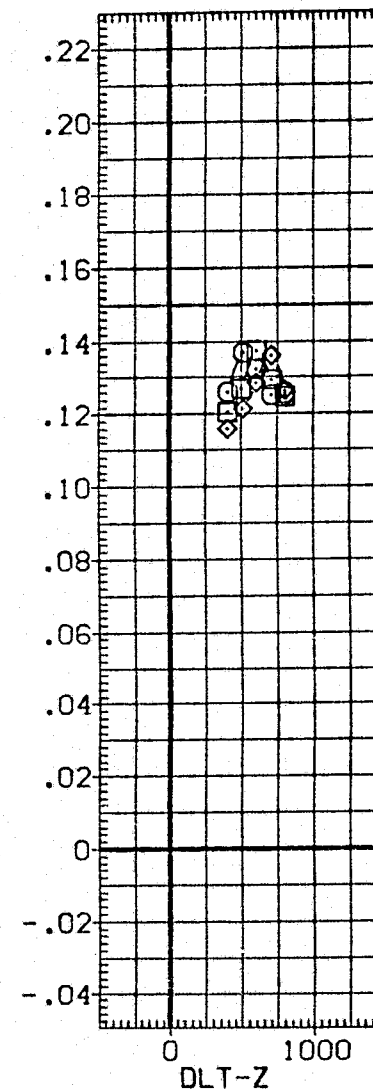
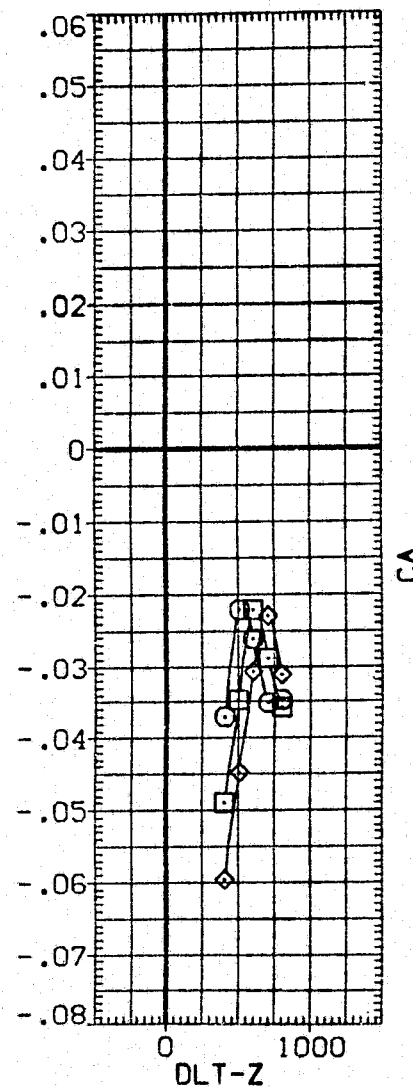
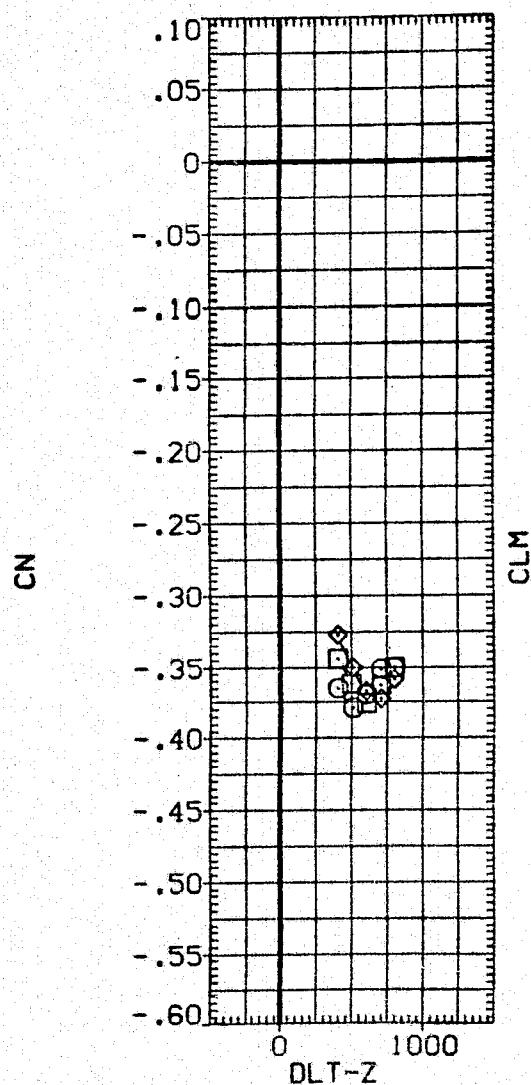


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR258)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.476	.476	60.000	60.000	ALPHA	-10.000
□	200.420	200.420	BETA	.000	DLTALF	-10.000
◇	400.360	400.360	DLTBT	3.000	MACH	5.930
			AIRLON	.000	ELEVON	.000
			GRID	9.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

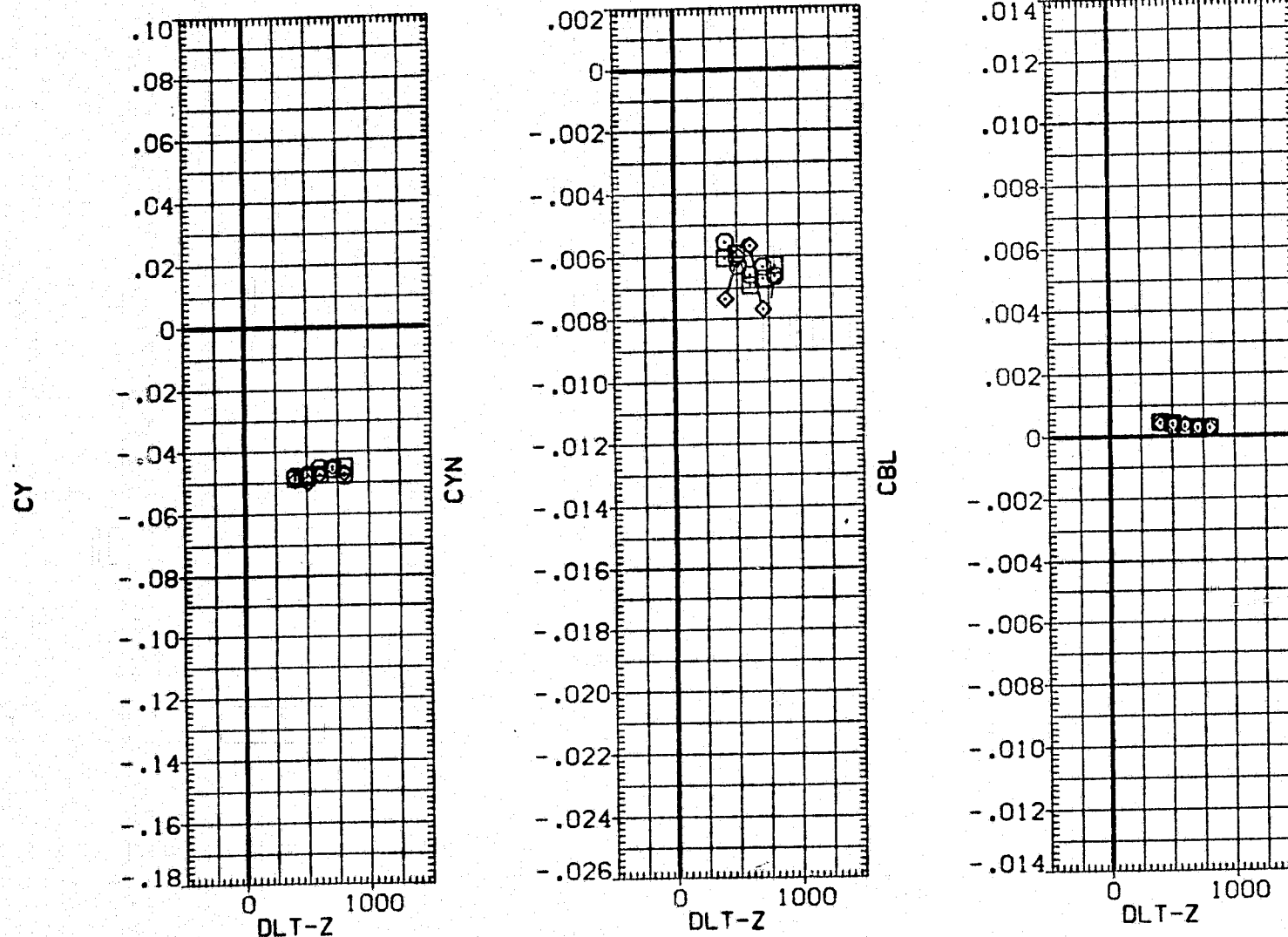


FIGURE 32 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR313)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	.515	DLT-Y	60.000	ALPHA	
□	400.460	BETA	.000	DLTALF	.000
		DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

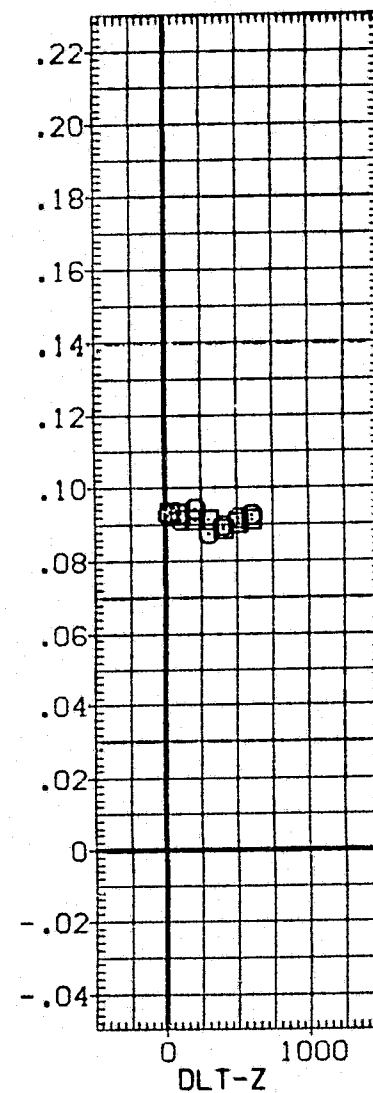
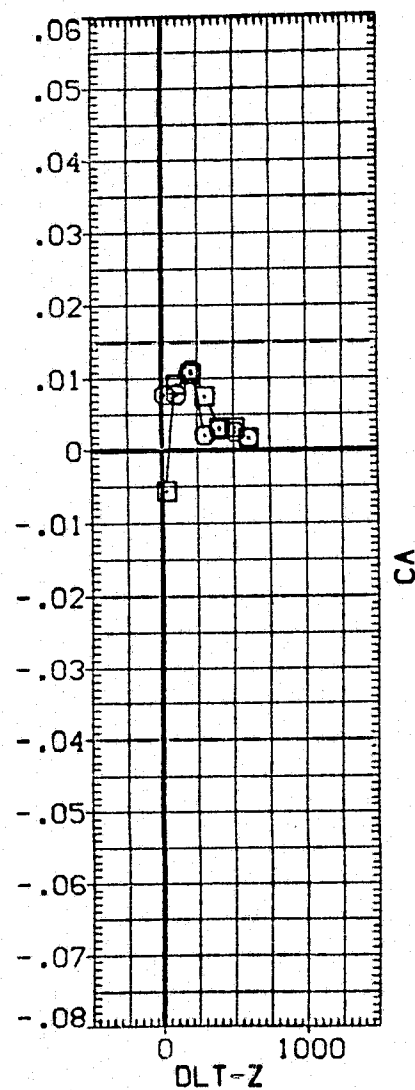
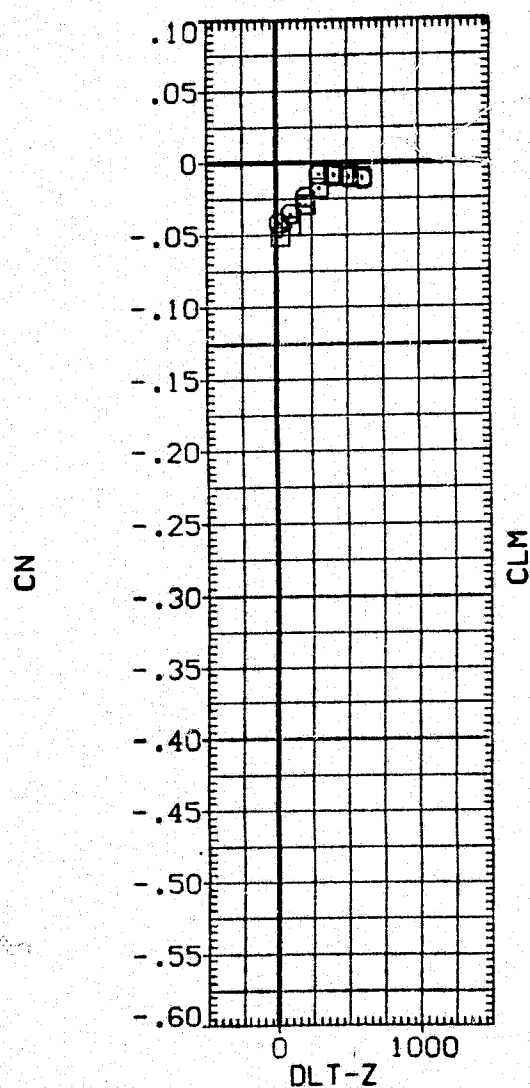


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.515	DLT-Y	60.000	ALPHA	.000
□	400.460	BETA	.000	DLTALF	.000
		DLT8TA	3.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

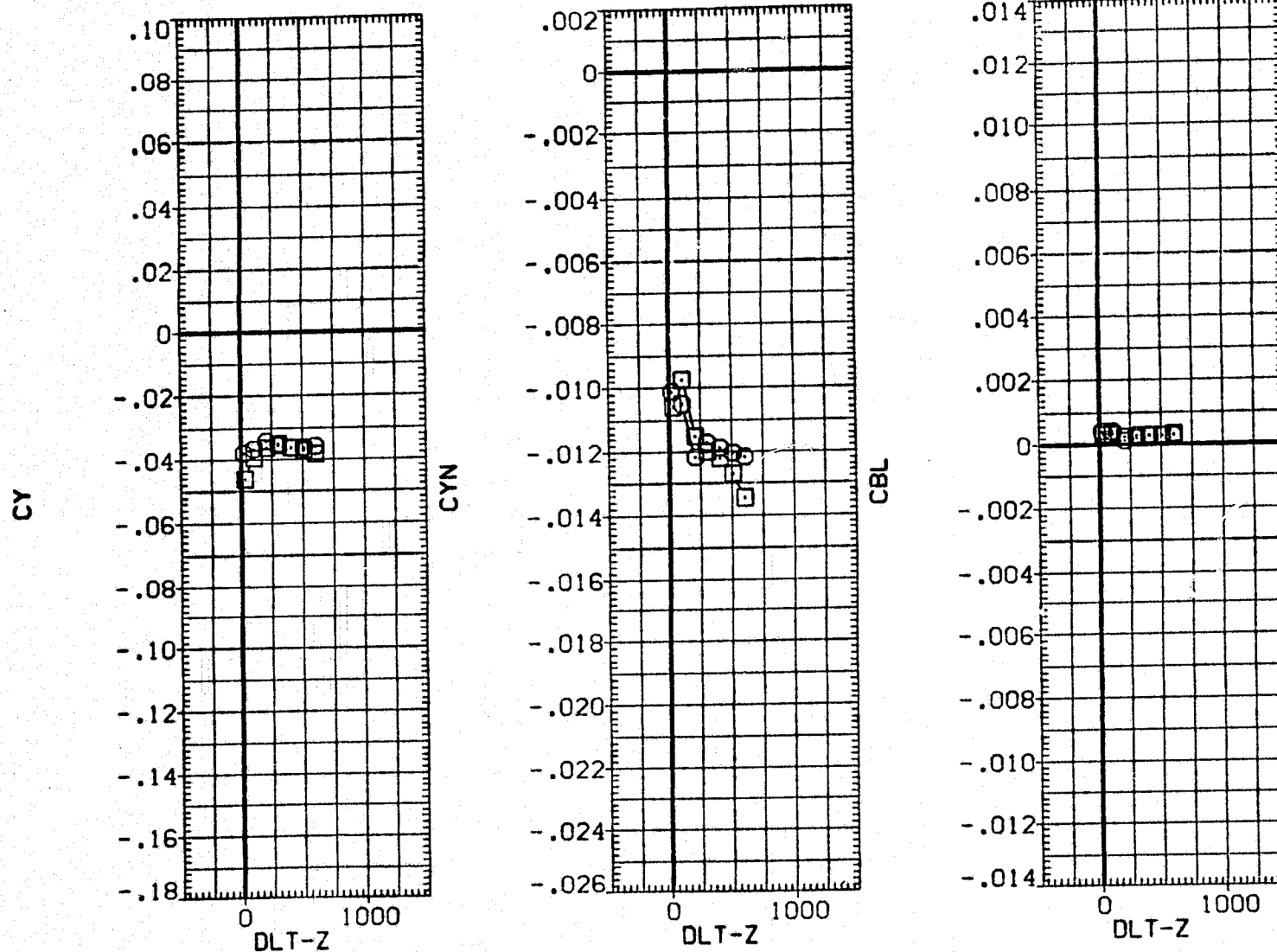


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR314)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.468	60.000	DLTALF	.000
□	400.380	BETA .000	MACH	-10.000
		DLTBTA 3.000	ELEVON	5.930
		AILRON .000		15.000
		GRID 13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

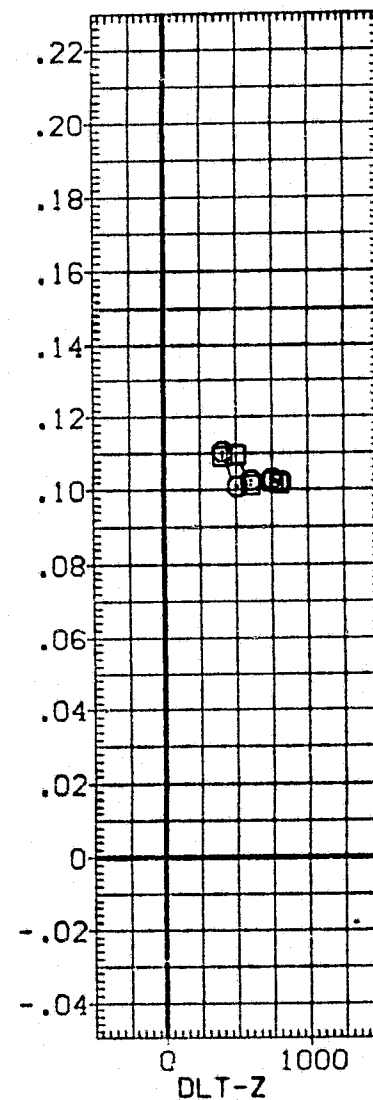
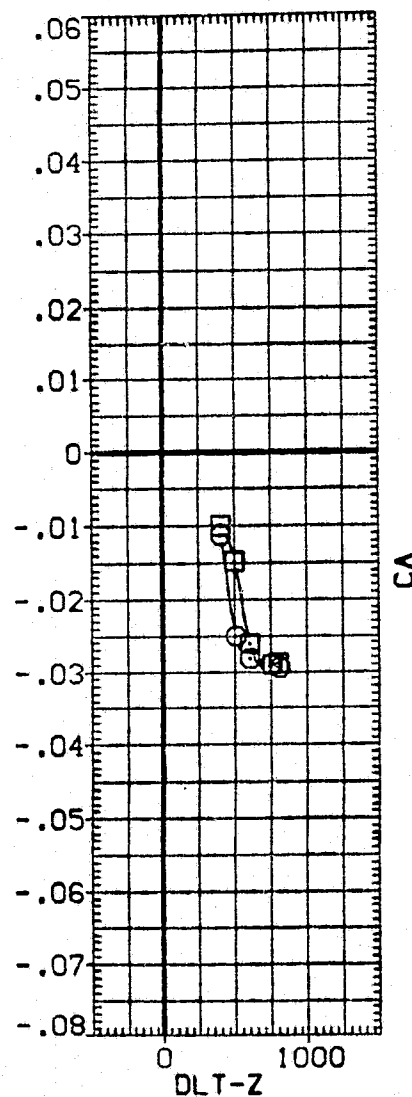
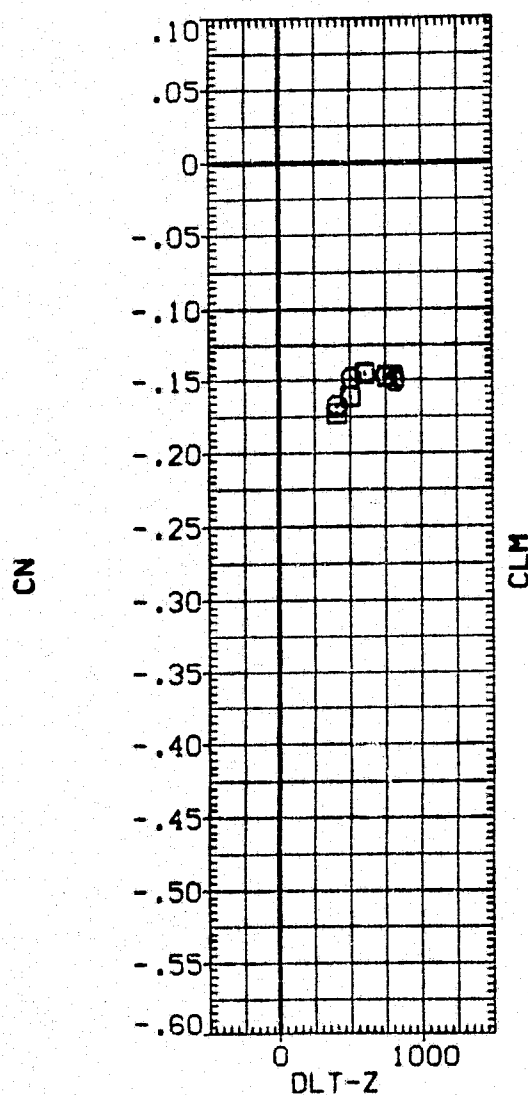


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR314)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	ALPHA	DLTALF	ELEVON
○	.468	BETA	60.000	-10.000	15.000
□	400.390	DLTBT	.000	5.930	
		AILRON	3.000		
		GRID	.000		
			13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

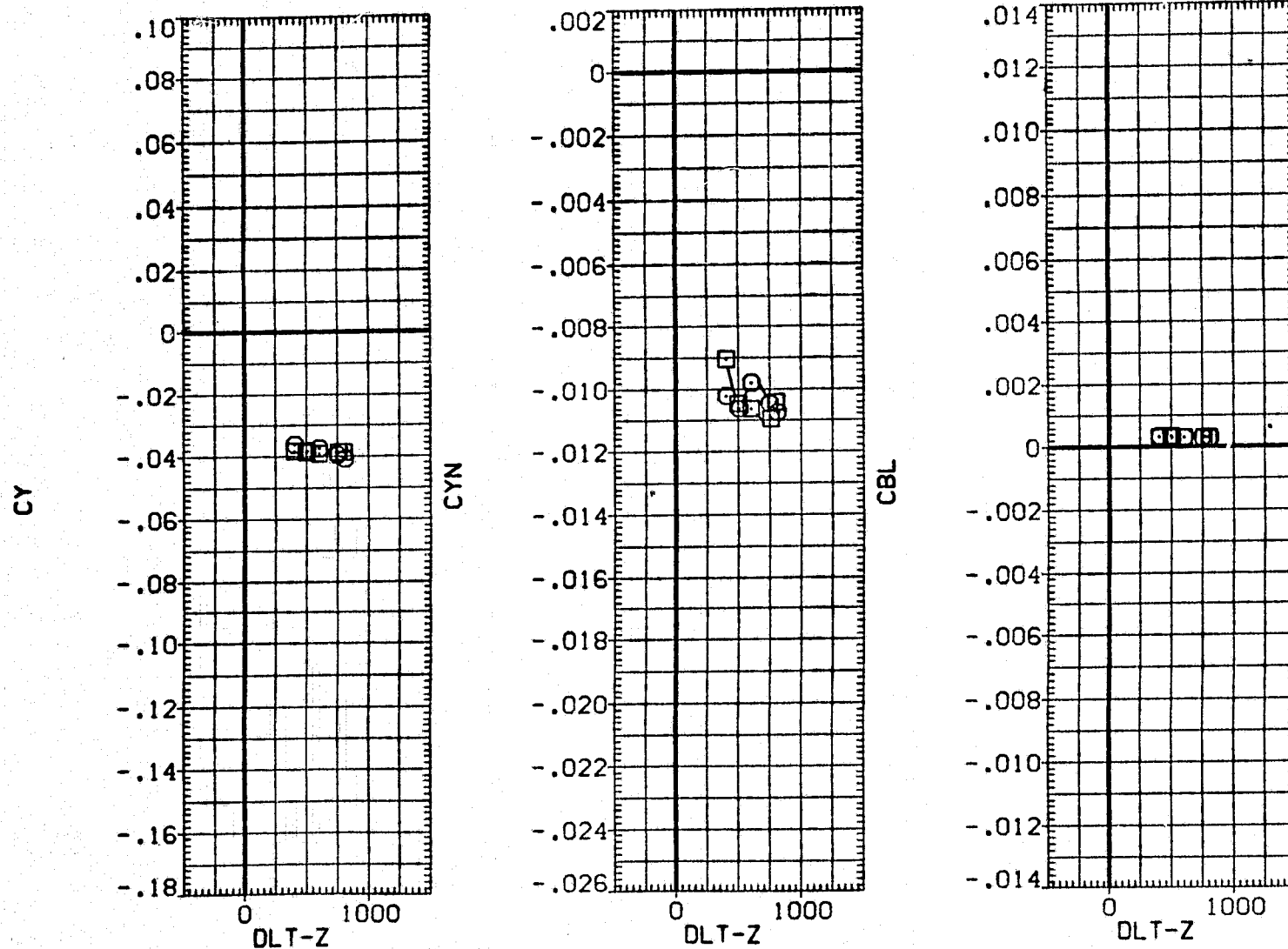


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR316)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	60.000	ALPHA	.000	
○	.457	BETA	.000	DLTALF	-20.000	
□	400.390	DLTSTA	3.000	MACH	5.930	
		ATLRON	.000	ELEVON	15.000	
		GRID	13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

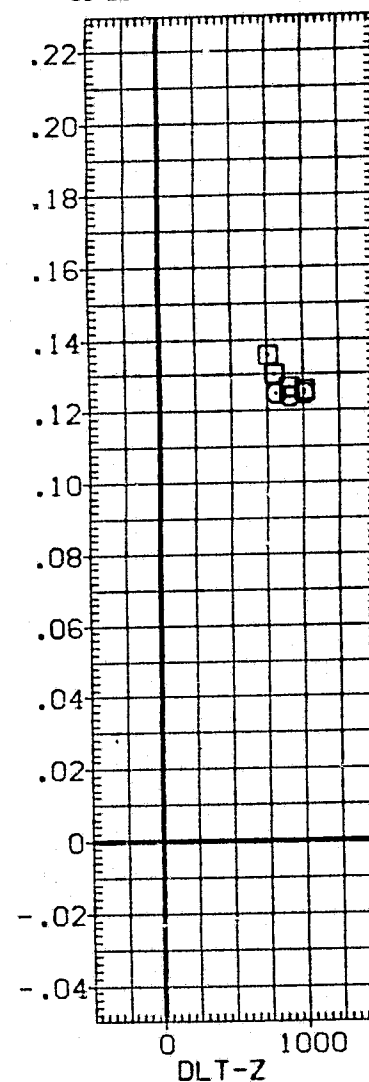
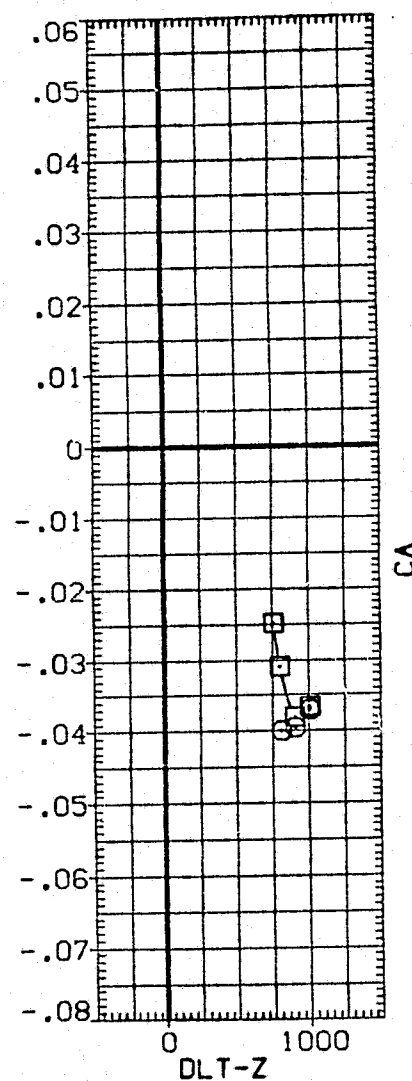
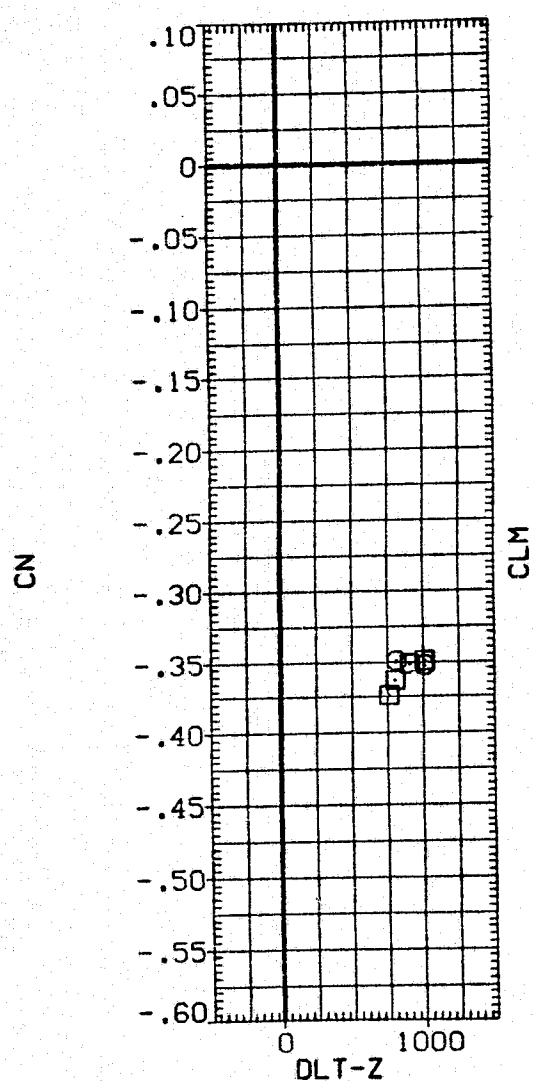


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR316)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	DLT-Z
○	.457	60.000	ALPHA	.000
□	400.390	.000	DLTALF	-20.000
		3.000	MACH	5.930
		.000	ELEVON	15.000
		13.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

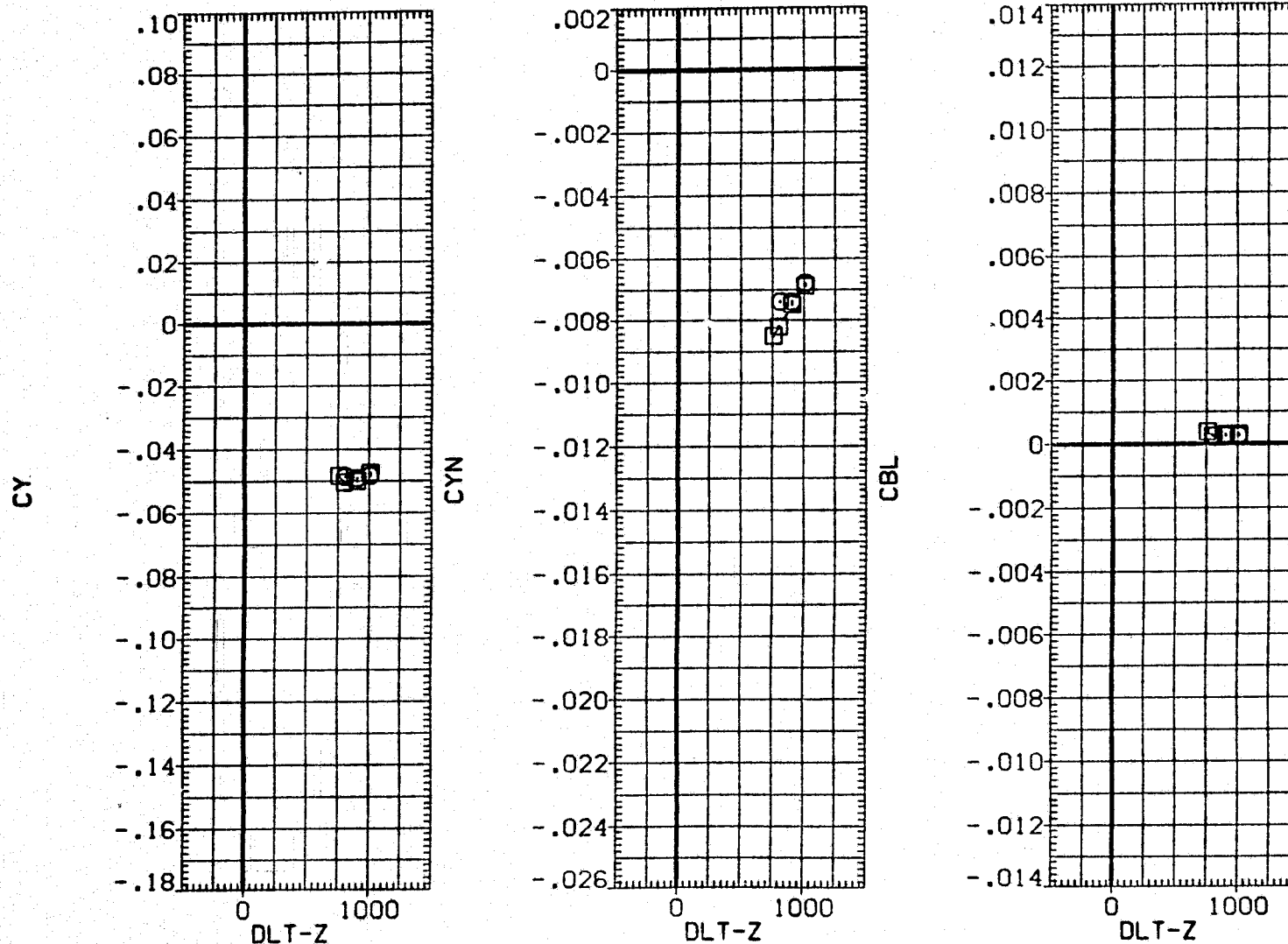


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR310)

SYMBOL	DLT-X	PARAMETRIC VALUES
○	.537	DLT-Y 60.000 ALPHA .000
		BETA 3.000 DLTALF .000
		DLTBTA 3.000 MACH 5.930
		ATLRON .000 ELEVON 15.000
		GRID 14.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

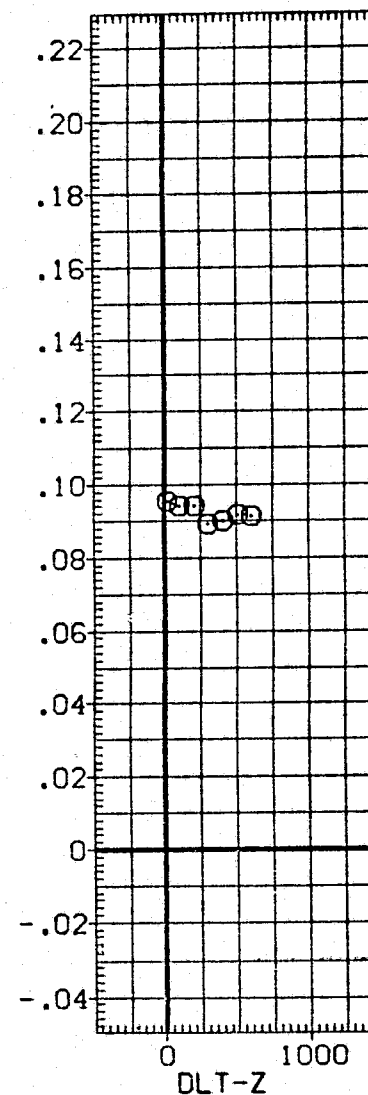
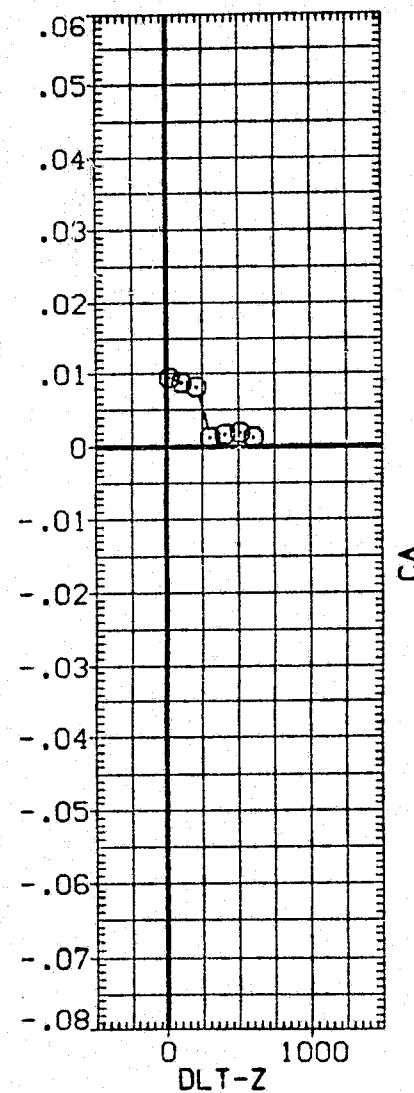
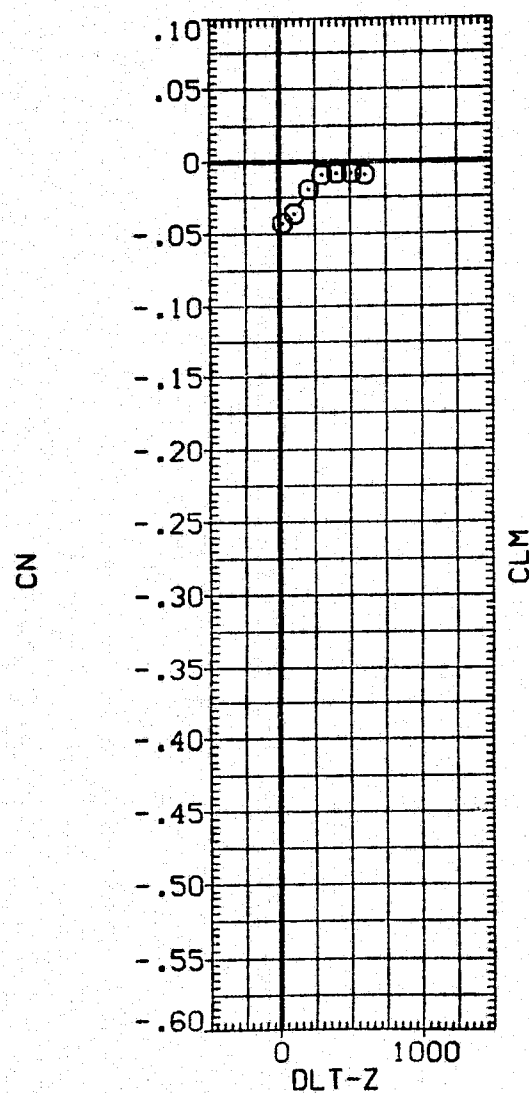


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15).

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR310)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
O	.537	BETA	60.000	.000	
		DLTBTA	3.000	.000	
		AILRON	.000	5.930	
		GRID	14.000	15.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

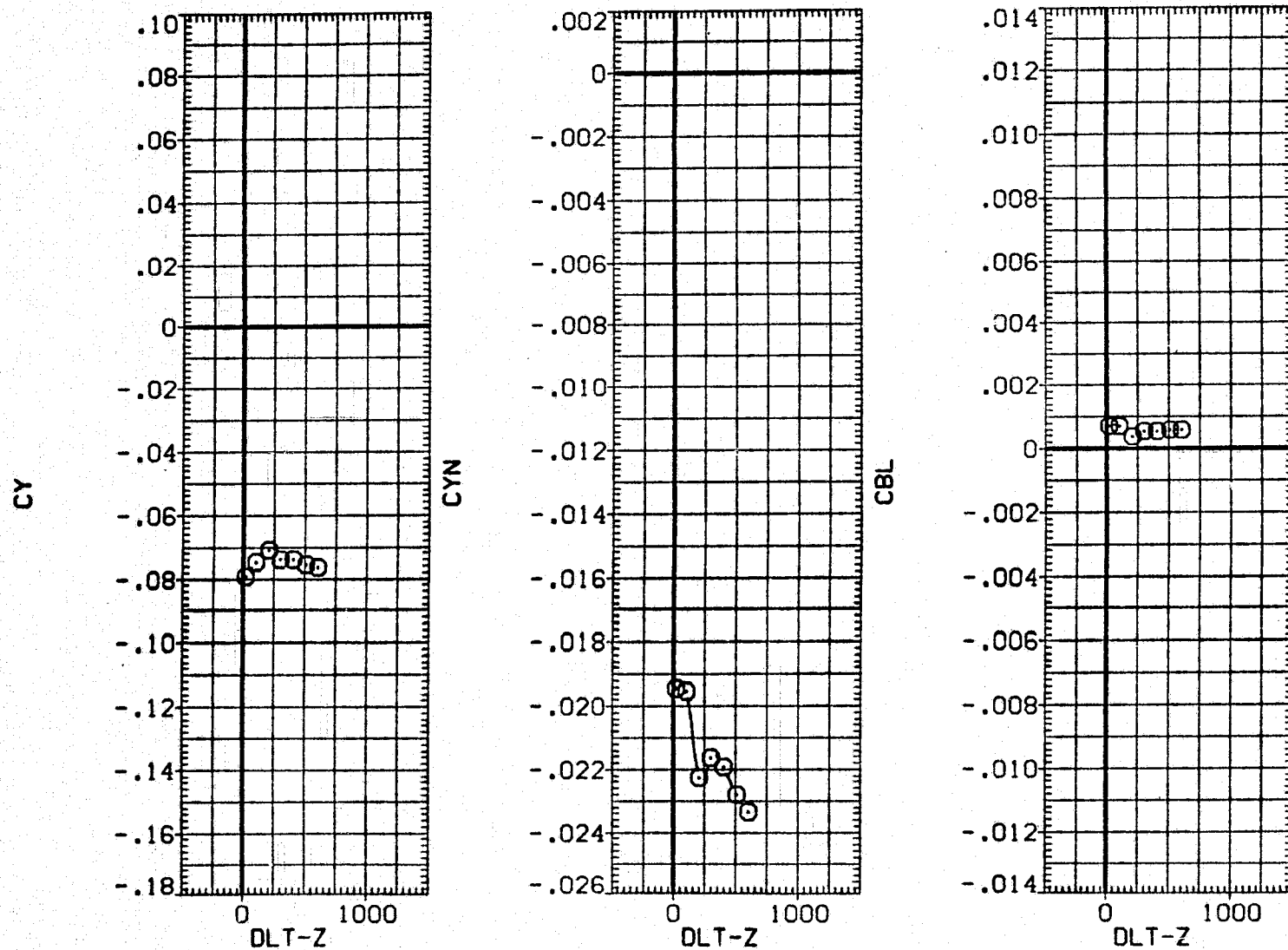


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR311)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	60.000	ALPHA	.000
○	.457	BETA	3.000	DLTALF	-10.000
		DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

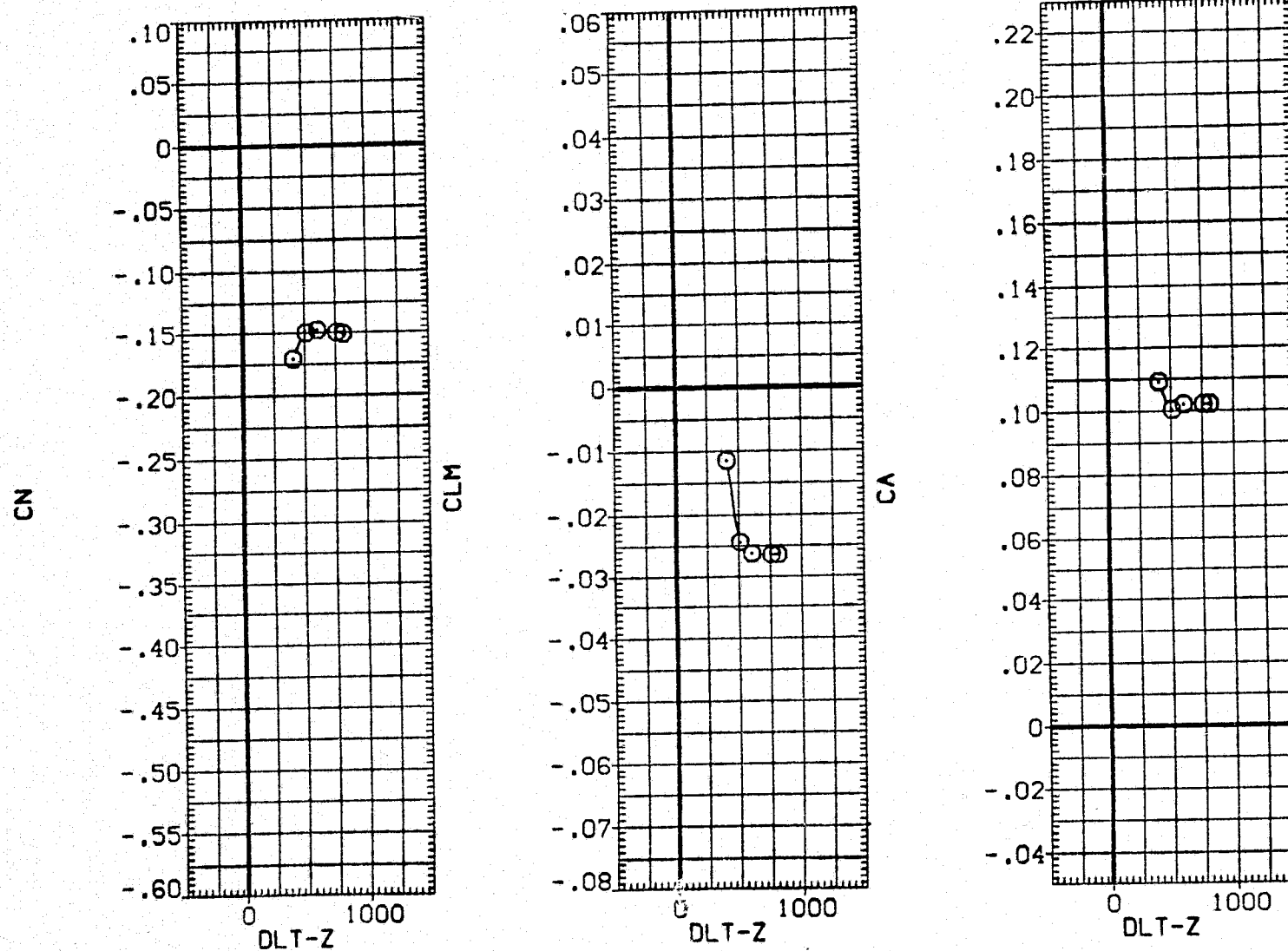


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR311)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	DLT-Z	ALPHA	
O	.457	60.000	10.000	.000	
		BETA	DLTALF	-10.000	
		DLTBT	MACH	5.930	
		AILRON	ELEVON	15.000	
		GRID			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

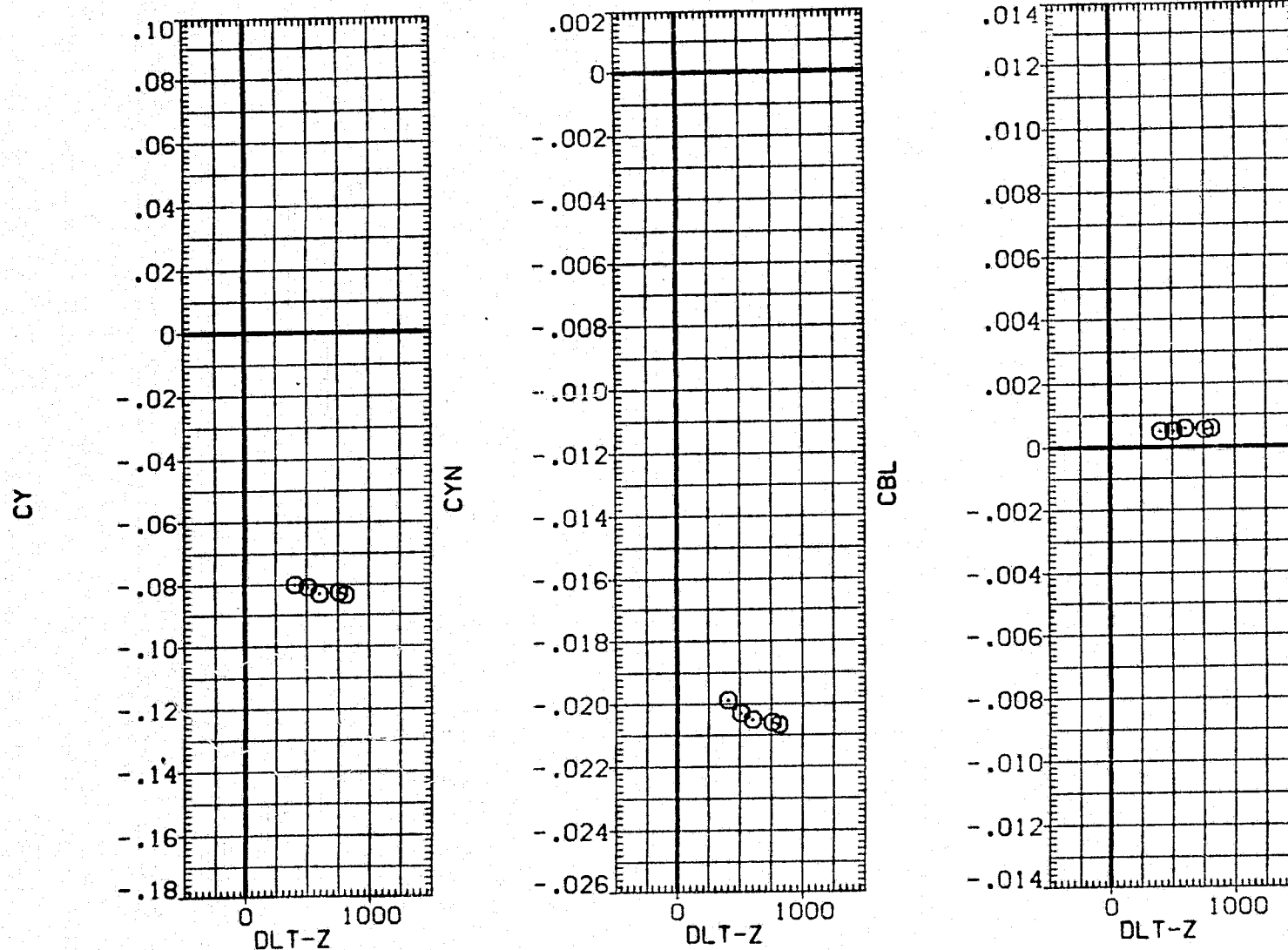


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR312)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	60.000	ALPHA	.000
		BETA	3.000	DLTALF	--20.000
		DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	14.000		

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

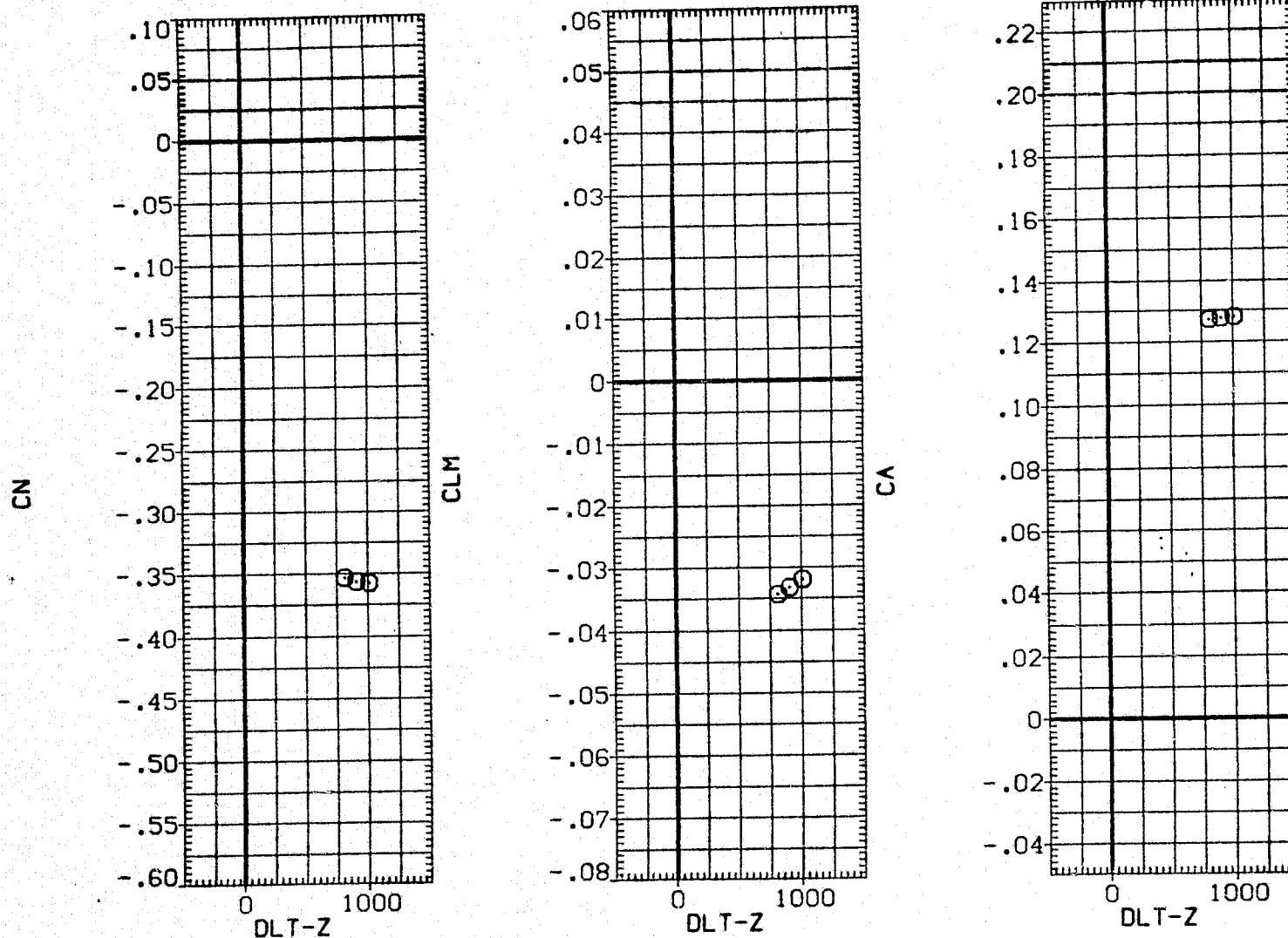


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR312)

SYMBOL
O

DLT-X
.406

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES

60.000	ALPHA	.000
3.000	DLTALF	-20.000
3.000	MACH	5.930
.000	ELEVON	15.000
14.000		

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

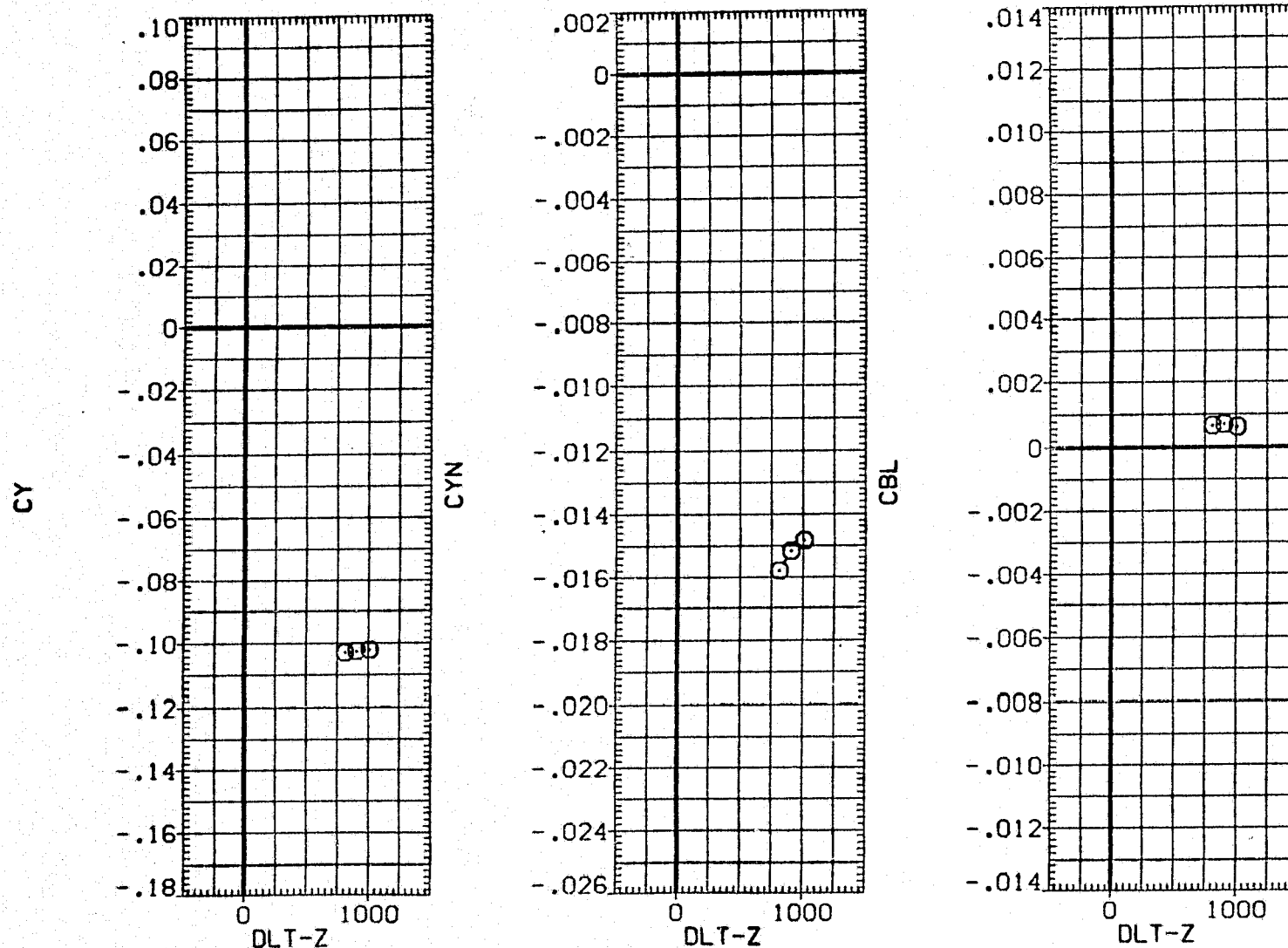


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR317)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.522	BETA	60.000	5.000	
□	400.440	DLTBT	.000	.000	
		AIRLON	3.000	5.930	
		GRID	.000	ELEVON	15.000
			12.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

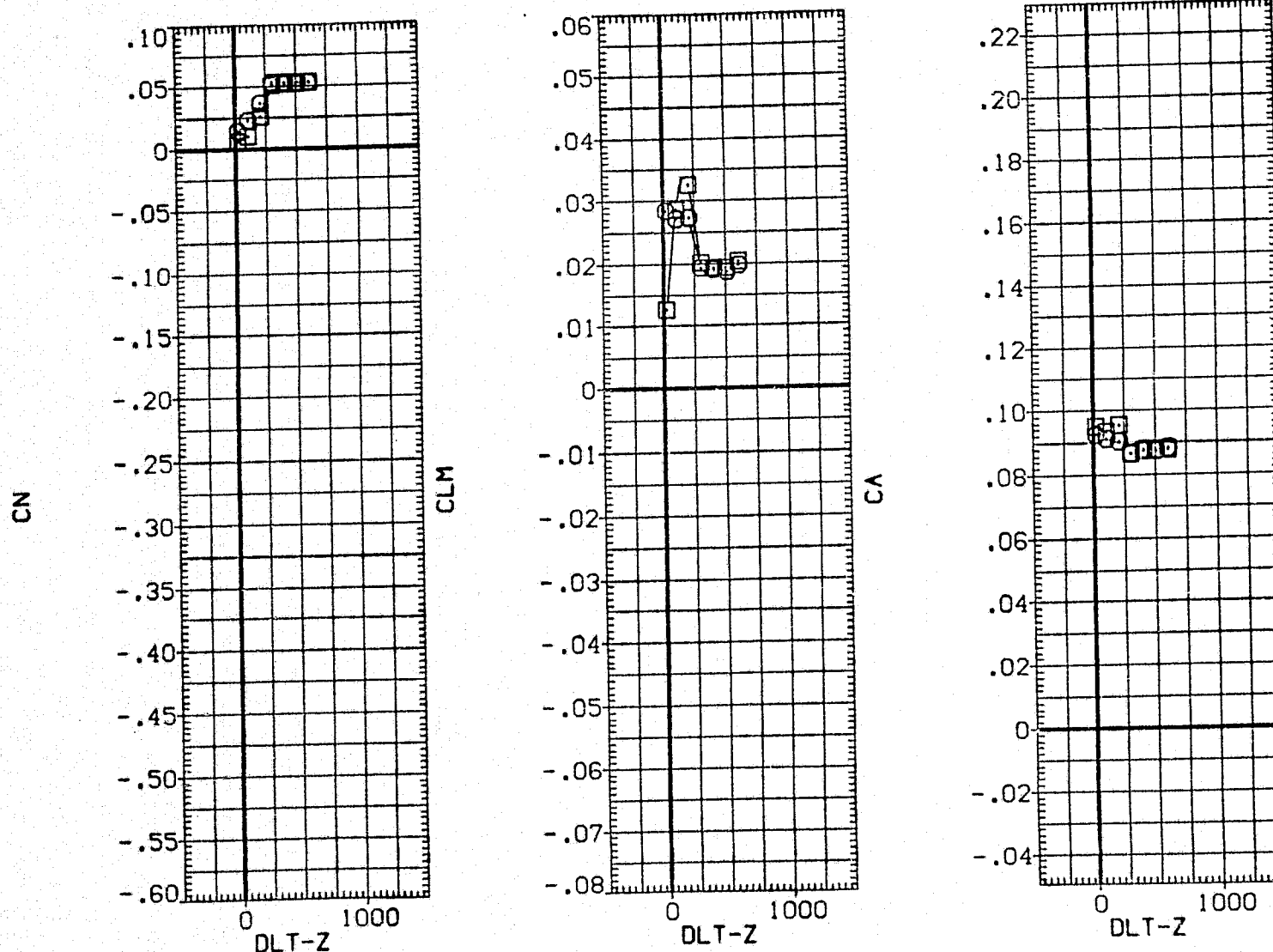


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR317)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES		ALPHA	
	DLT-X	DLT-Y	BETA	DLTBT	ALPHA	DLTALF	MACH	ELEVON
○	.522	400.440	.000	.000	60.000	.000	5.930	15.000
□					3.000	.000		
					12.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

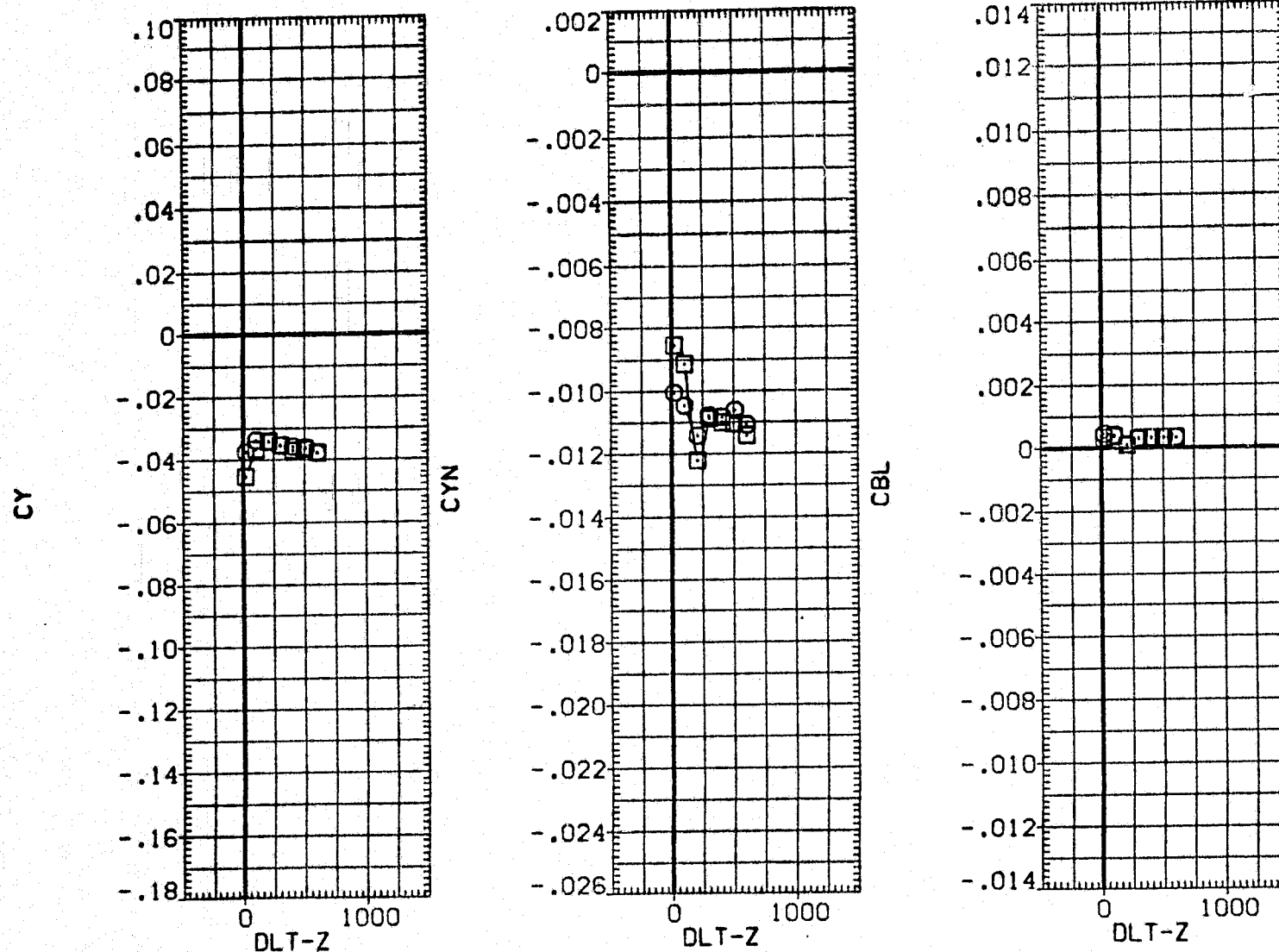


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR318)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.472	BETA	60.000	ALPHA 5.000
□	400.450	DLTBTA	.000	DLTALF -10.000
		AILRON	3.000	MACH 5.930
		GRID	.000	ELEVON 15.000
			12.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

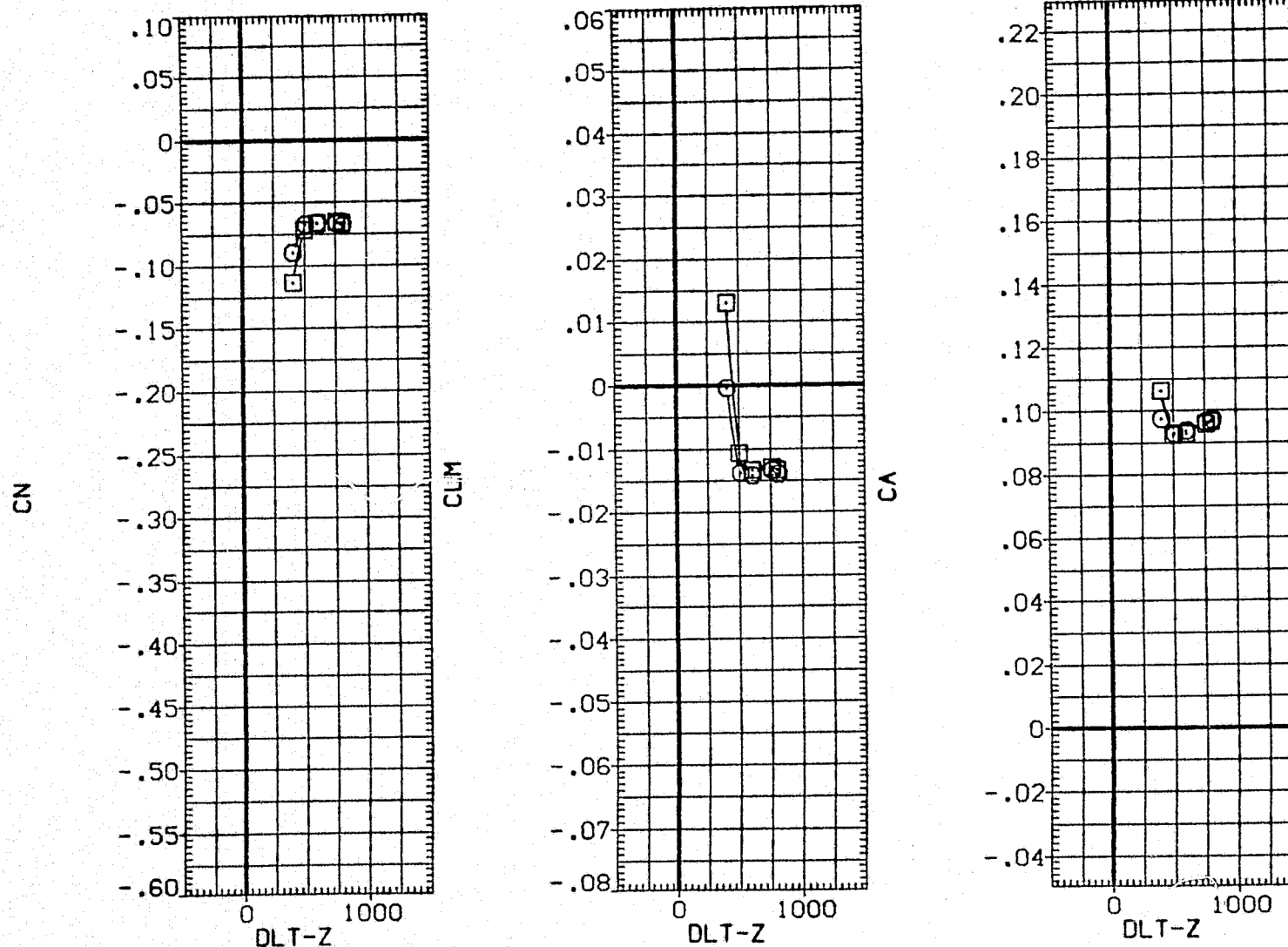


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR318)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
			60.000	ALPHA	5.000
○	.472	BETA	.000	DLTALF	-10.000
□	400.450	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
ZMRP	1360.0000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

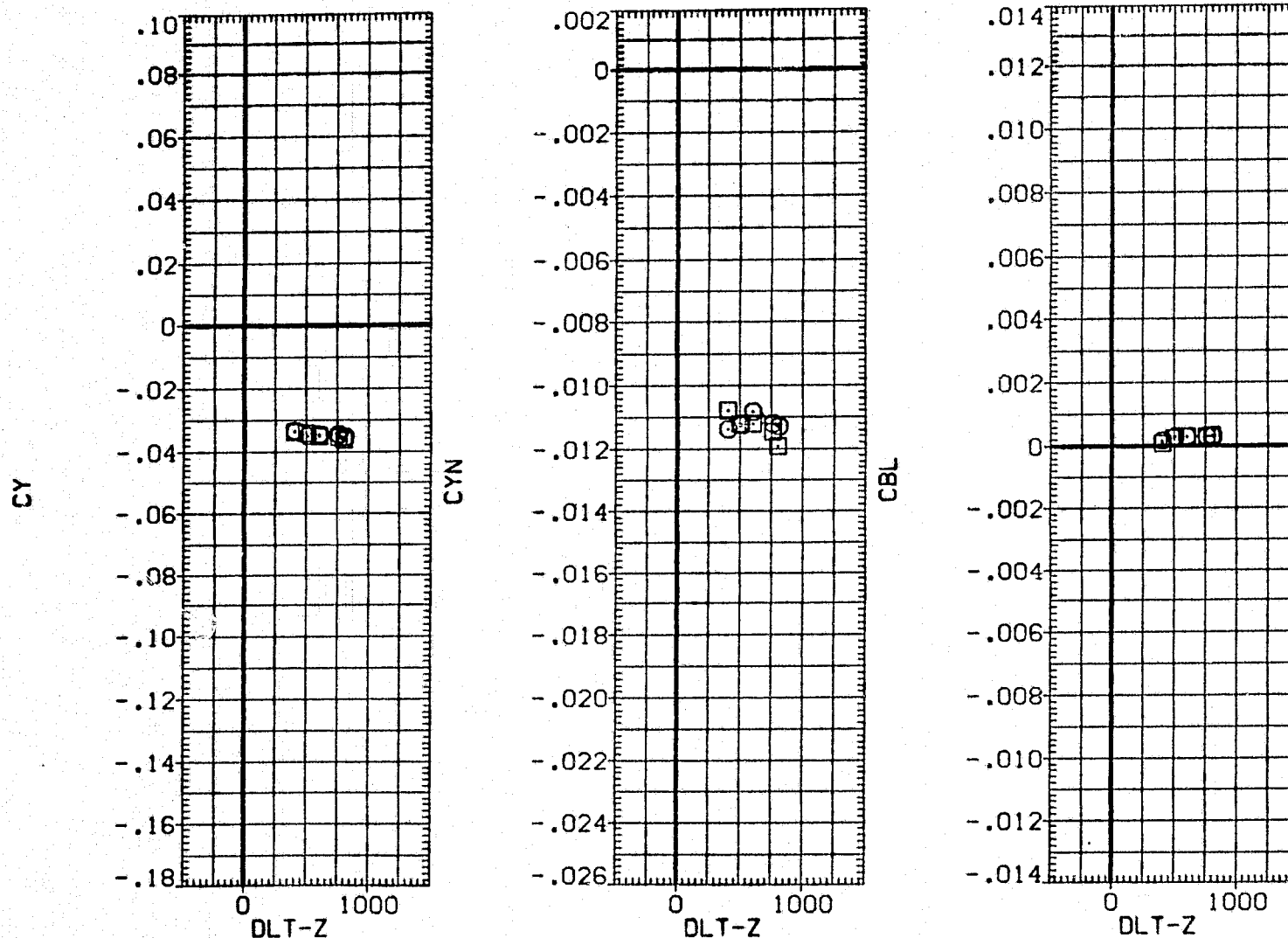


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR320)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.446	60.000	DLTALF	5.000
□	400.420	BETA .000	MACH	-20.000
		DLTBTA 3.000	ELEVON	5.930
		AILRON .000		15.000
		GRID 12.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

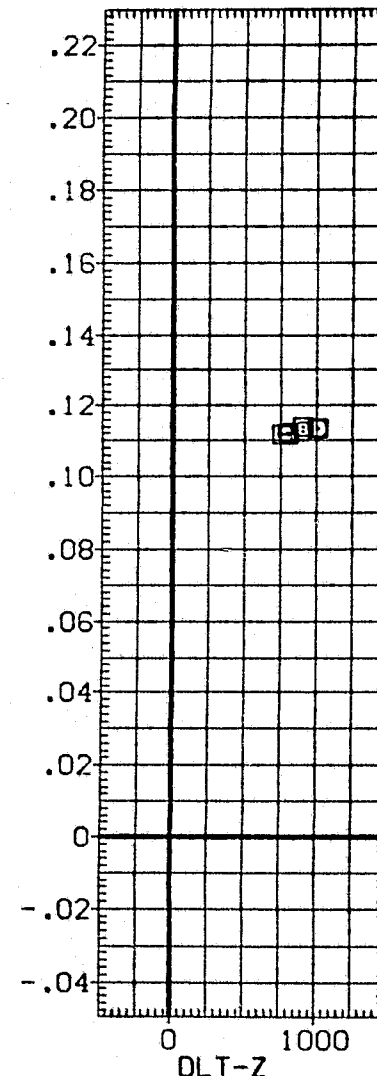
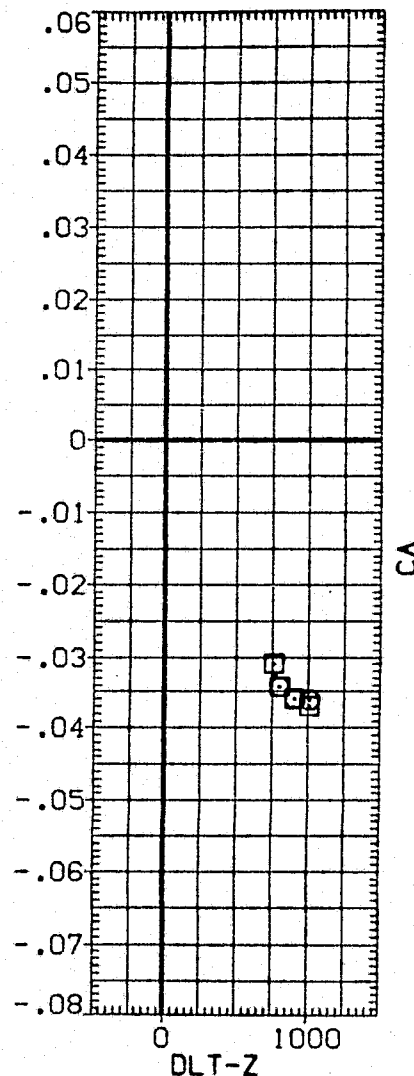
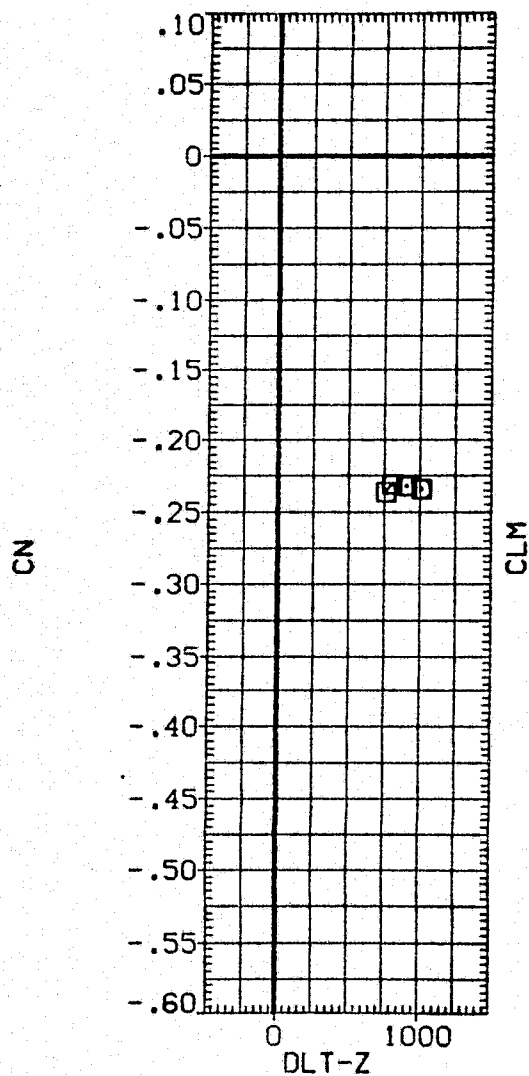


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR320)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.446	DLT-Y	60.000	ALPHA	5.000
□	400.420	BETA	.000	DLTALF	-20.000
		DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
ZMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

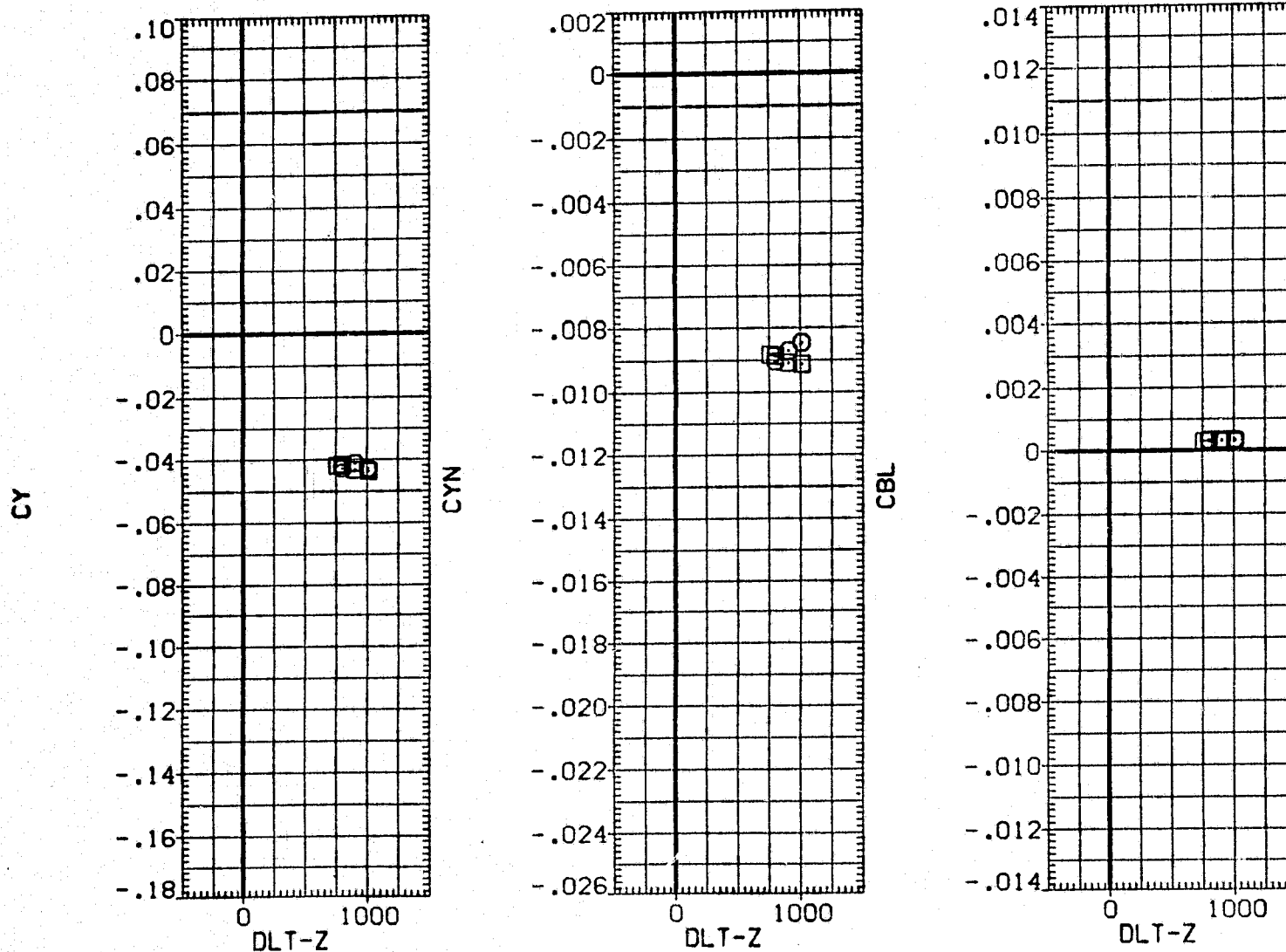


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR321)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	○	.455	DLT-Y	60.000	ALPHA	-5.000
	□	400.430	BETA	.000	DLTALF	.000
			DLTBTA	3.000	MACH	5.930
			AILRON	.000	ELEVON	15.000
			GRID	11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

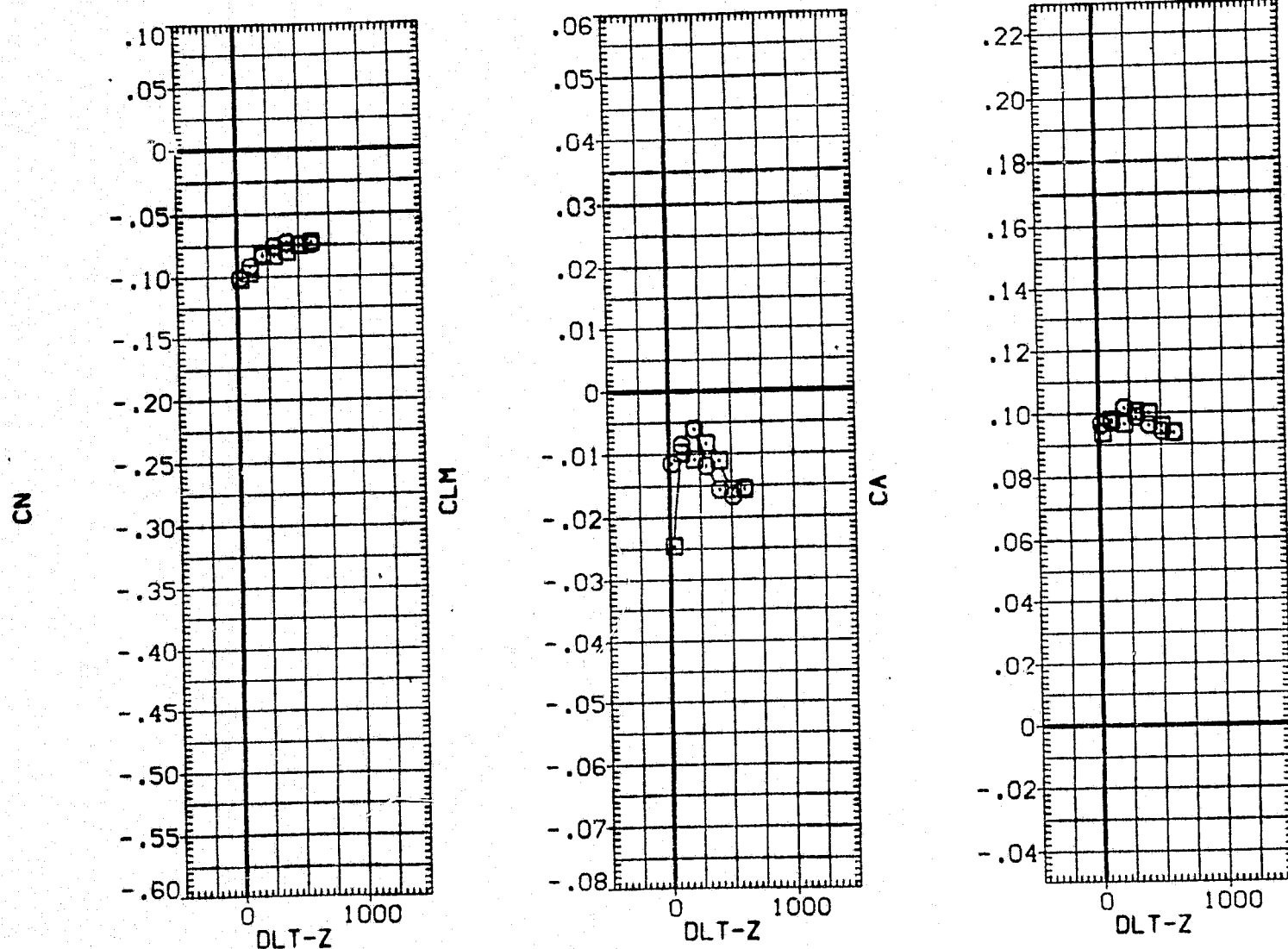


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) OPB AND ET SEPARATING(ET DATA) (ATR321)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.455	60.000	ALPHA	-5.000
□	400.430	.000	DLTALF	.000
		3.000	MACH	5.930
		.000	ELEVON	15.000
		11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

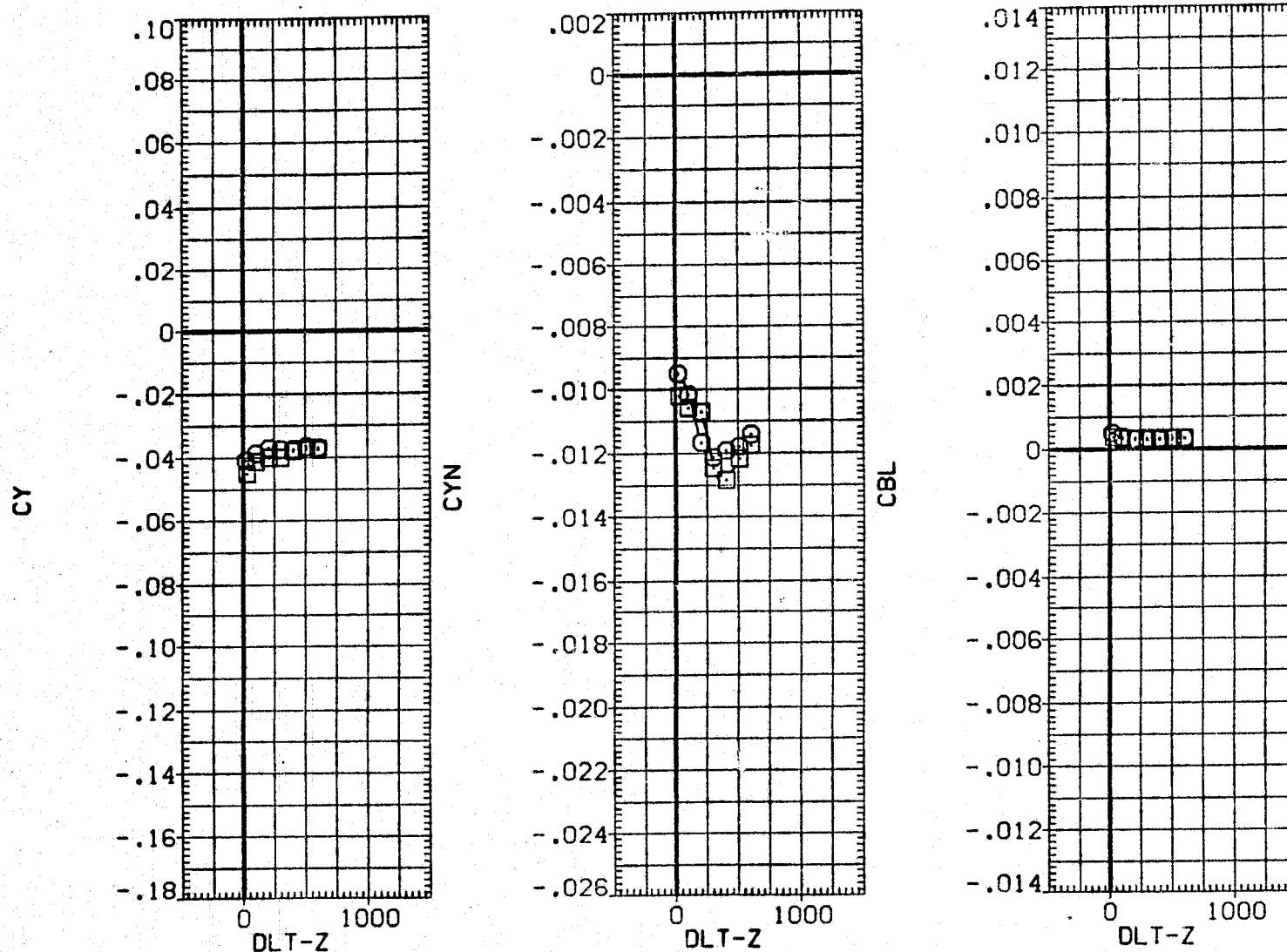


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR322)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.494	60.000	BETA	.000	-5.000
□	400.400	3.000	DLTALF	11.000	-10.000
		AILRON	MACH		5.930
		GRID	ELEVON		15.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

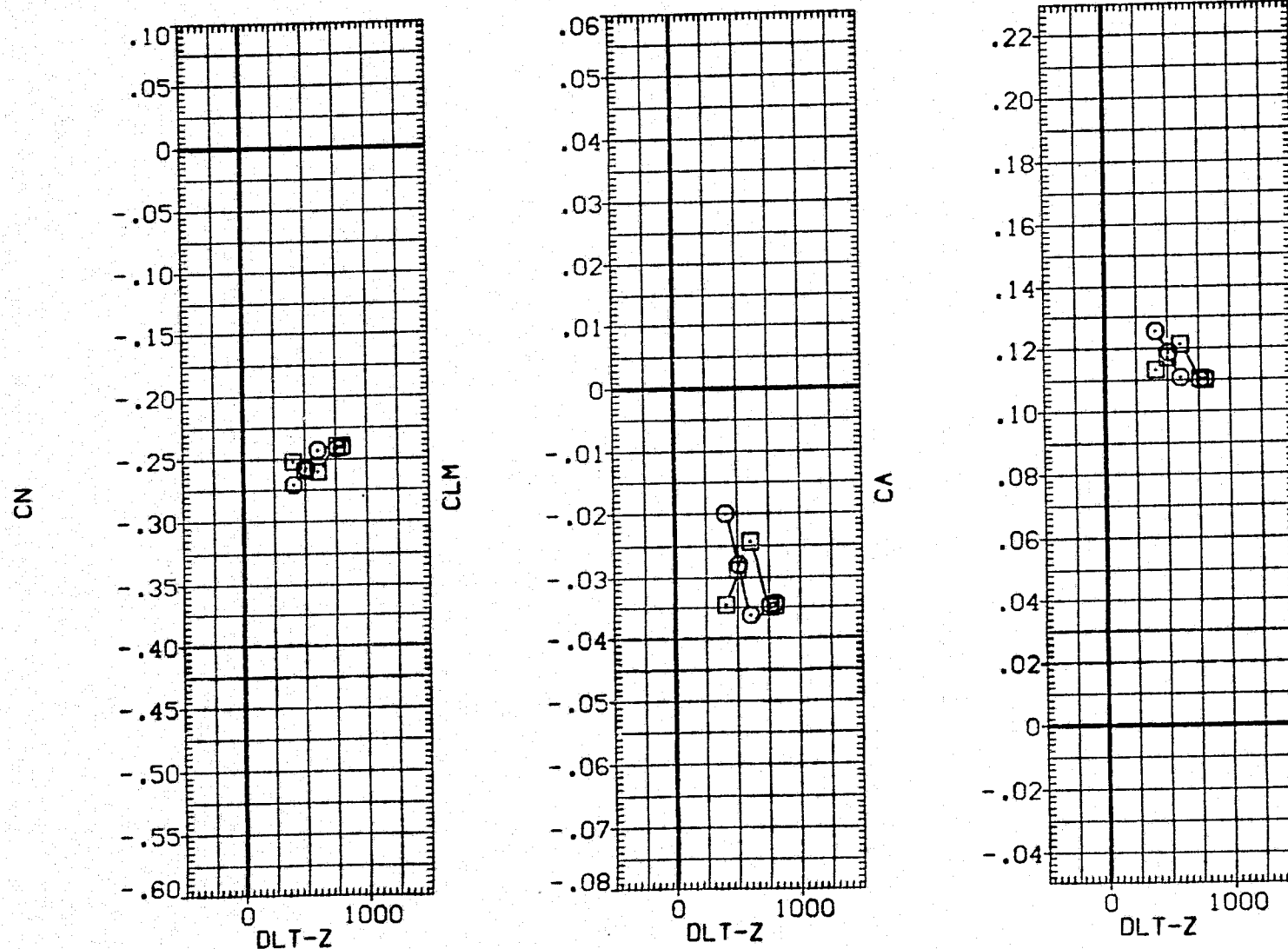


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR322)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	60.000	ALPHA	-5.000	
○	.494	BETA	.000	DLTALF	-10.000	
□	400.400	DLTBT	3.000	MACH	5.930	
		AILRON	.000	ELEVON	15.000	
		GRID	11.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

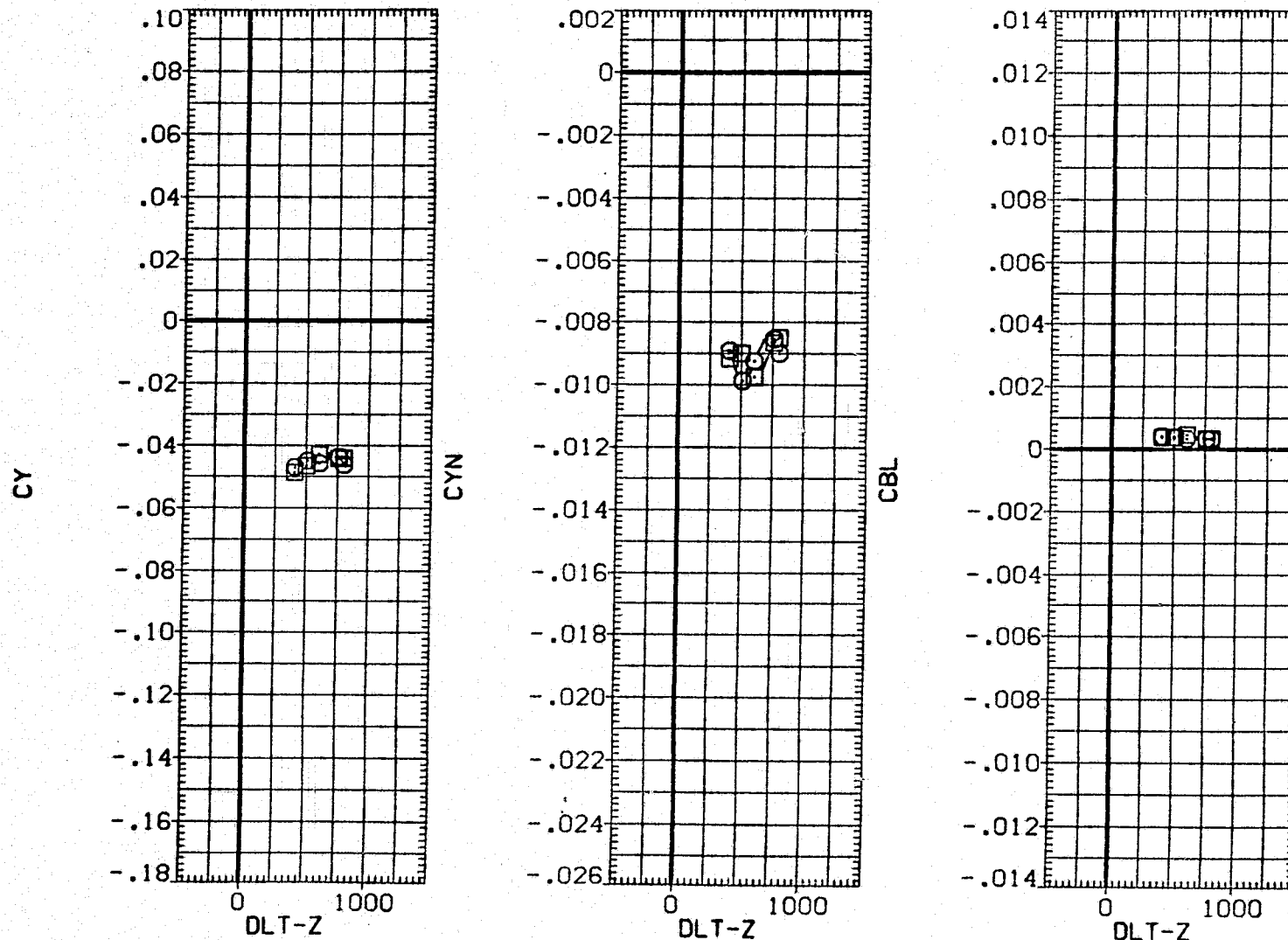


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR324)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.434	60.000		-5.000	
□	400.400	.000		-20.000	
		DLTBT A	3.000	MACH	5.930
		AILRON	.000	ELEVON	15.000
		GRID	11.000		

REFERENCE INFORMATION	
SREF	2690.0000
LREF	1290.3000
BREF	1290.3000
XMRP	1360.1000
YMRP	.0000
ZMRP	416.4000
SCALE	.0100
	50.FT.
	IN.
	IN.
	IN. XT
	IN. YT
	IN. ZT

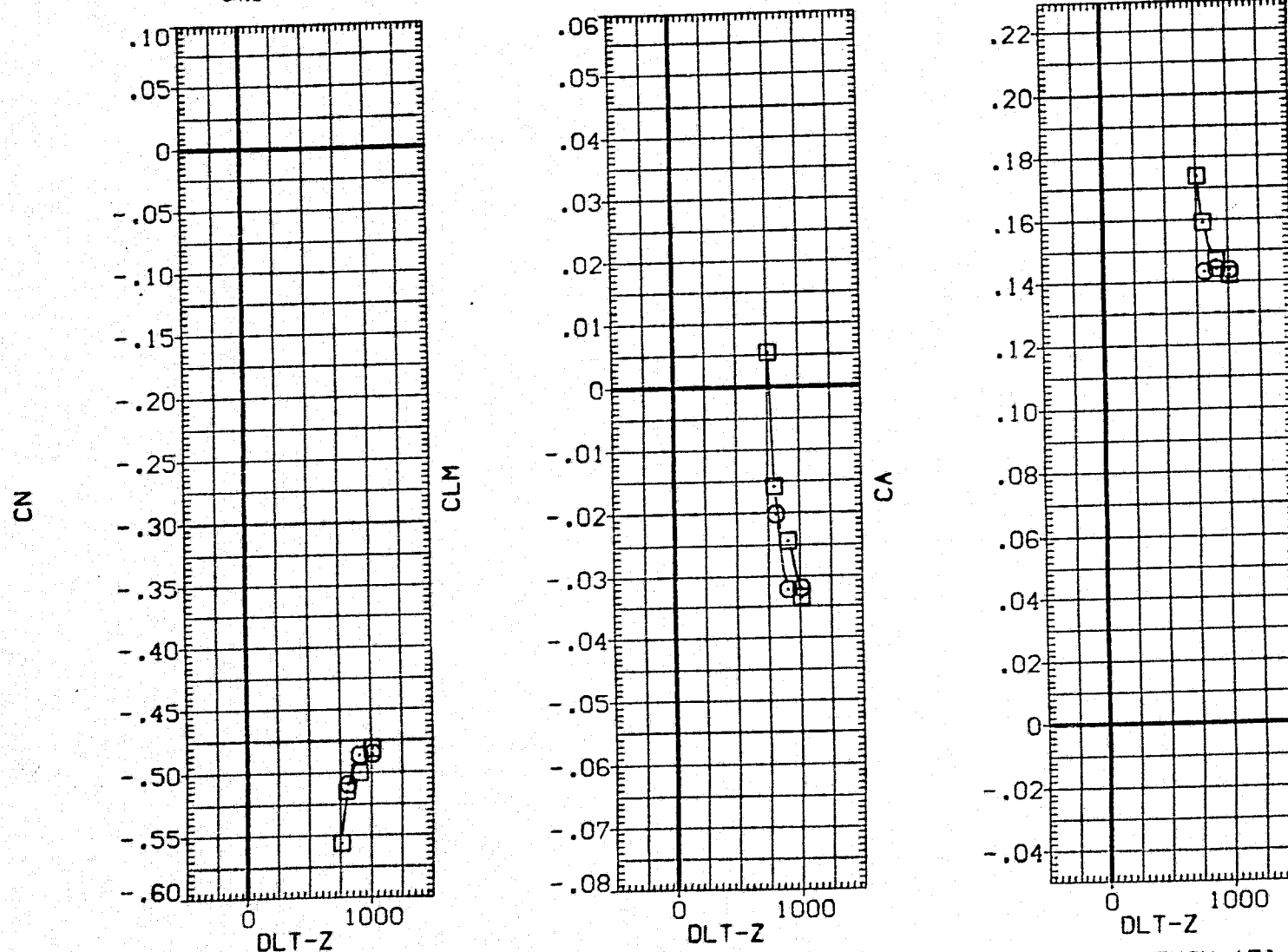


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR324)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.434	60.000	ALPHA	-5.000		
□	400.400	BETA	.000	DLTALF	-20.000	
		DLTBTA	3.000	MACH	5.930	
		AILRON	.000	ELEVON	15.000	
		GRID	11.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

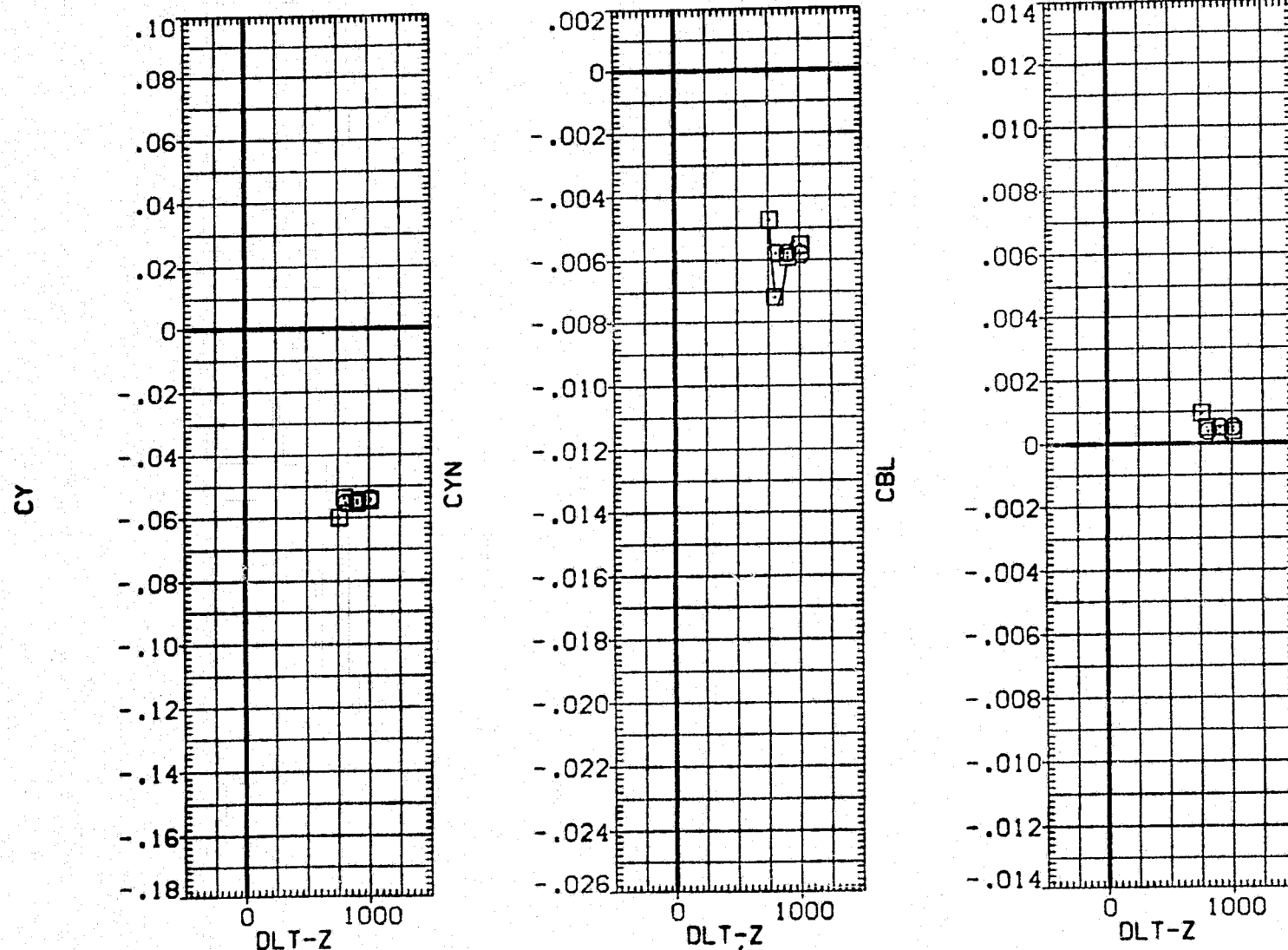


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR325)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.504	BETA	60.000	ALPHA
□	400.450	DLTBTA	.000	DLTALF
		AILRON	3.000	MACH
		GRID	.000	ELEVON
			10.000	15.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

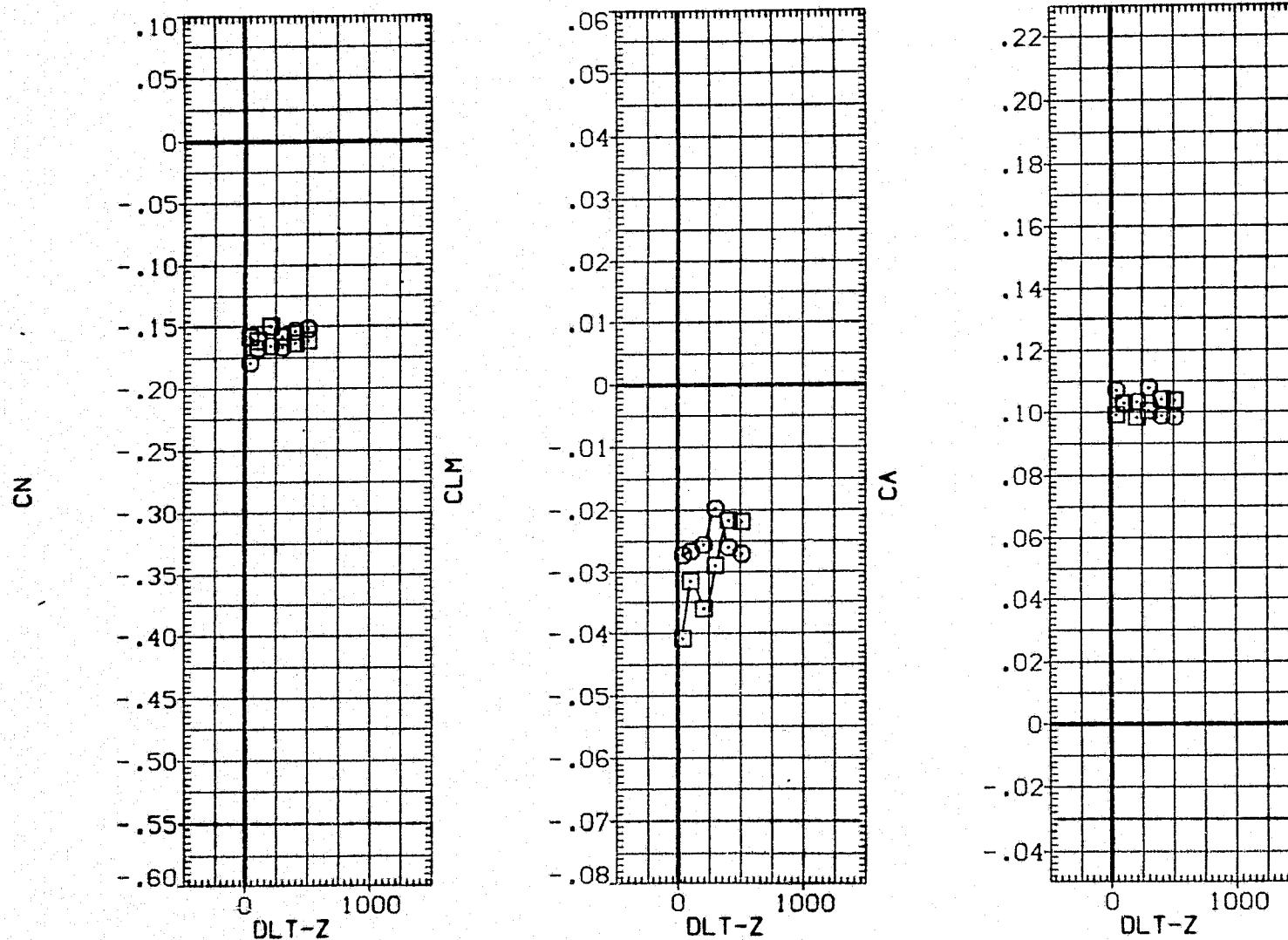


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR325)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	60.000	ALPHA	-10.000	
○	.504	BETA	.000	DLTALF	.000	
□	400.450	DLTBTA	3.000	MACH	5.930	
		AILRON	.000	ELEVON	15.000	
		GRID	10.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

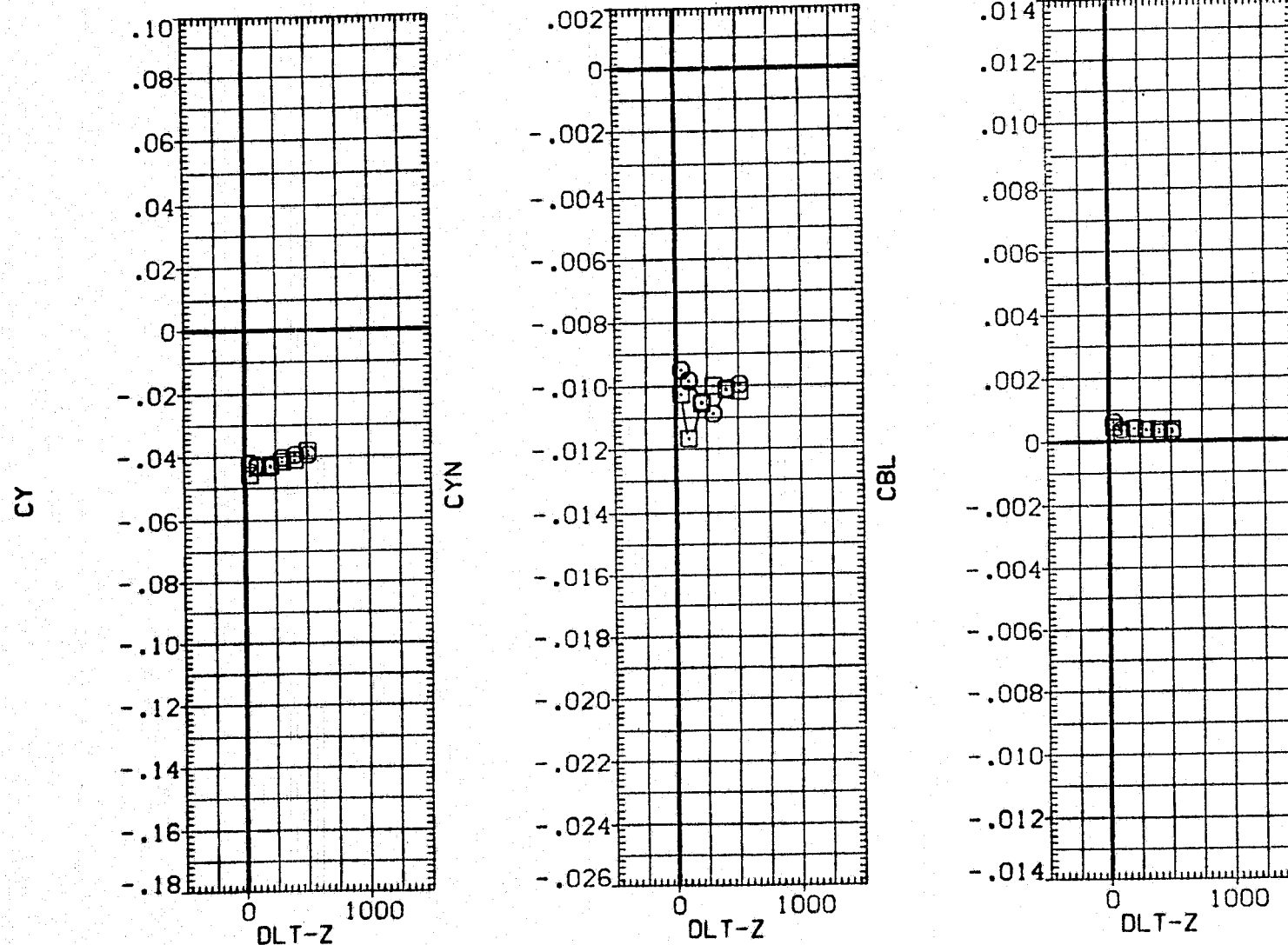


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR326)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.451	60.000	BETA	-10.000	
□	400.480	.000	DLTALF	-10.000	
		3.000	MACH	5.930	
		.000	ELEVON	15.000	
		10.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

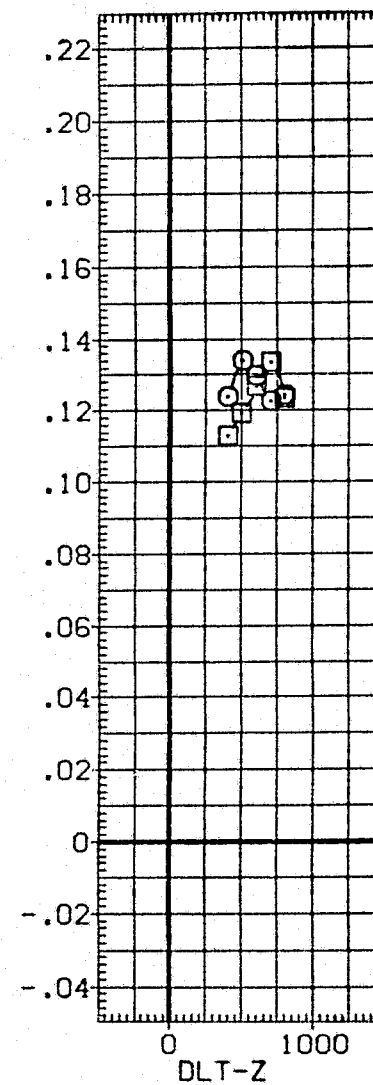
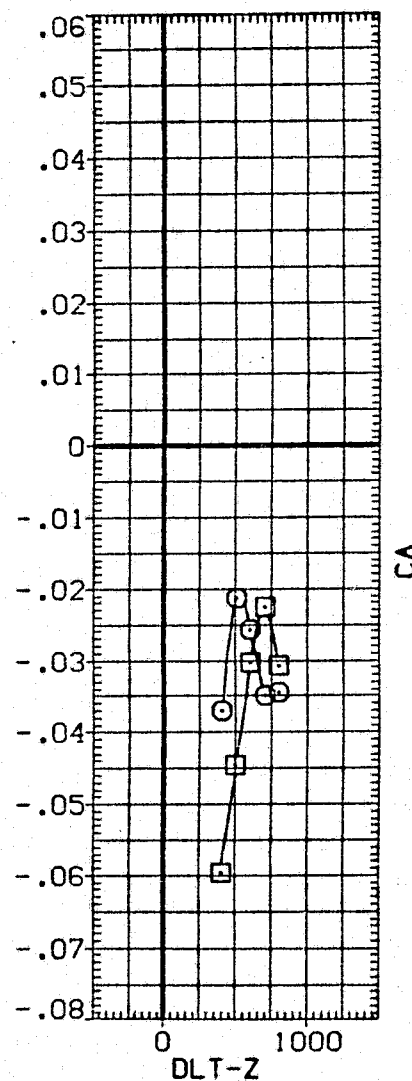
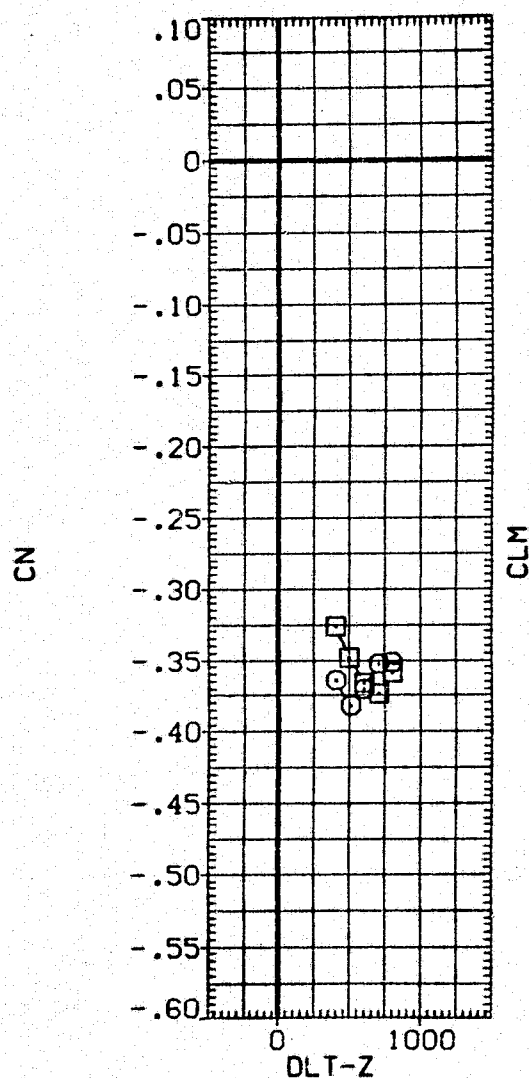


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR326)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.451		60.000	-10.000		
□	400.480		.000	-10.000	5.930	15.000
			3.000			
			.000			
			10.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

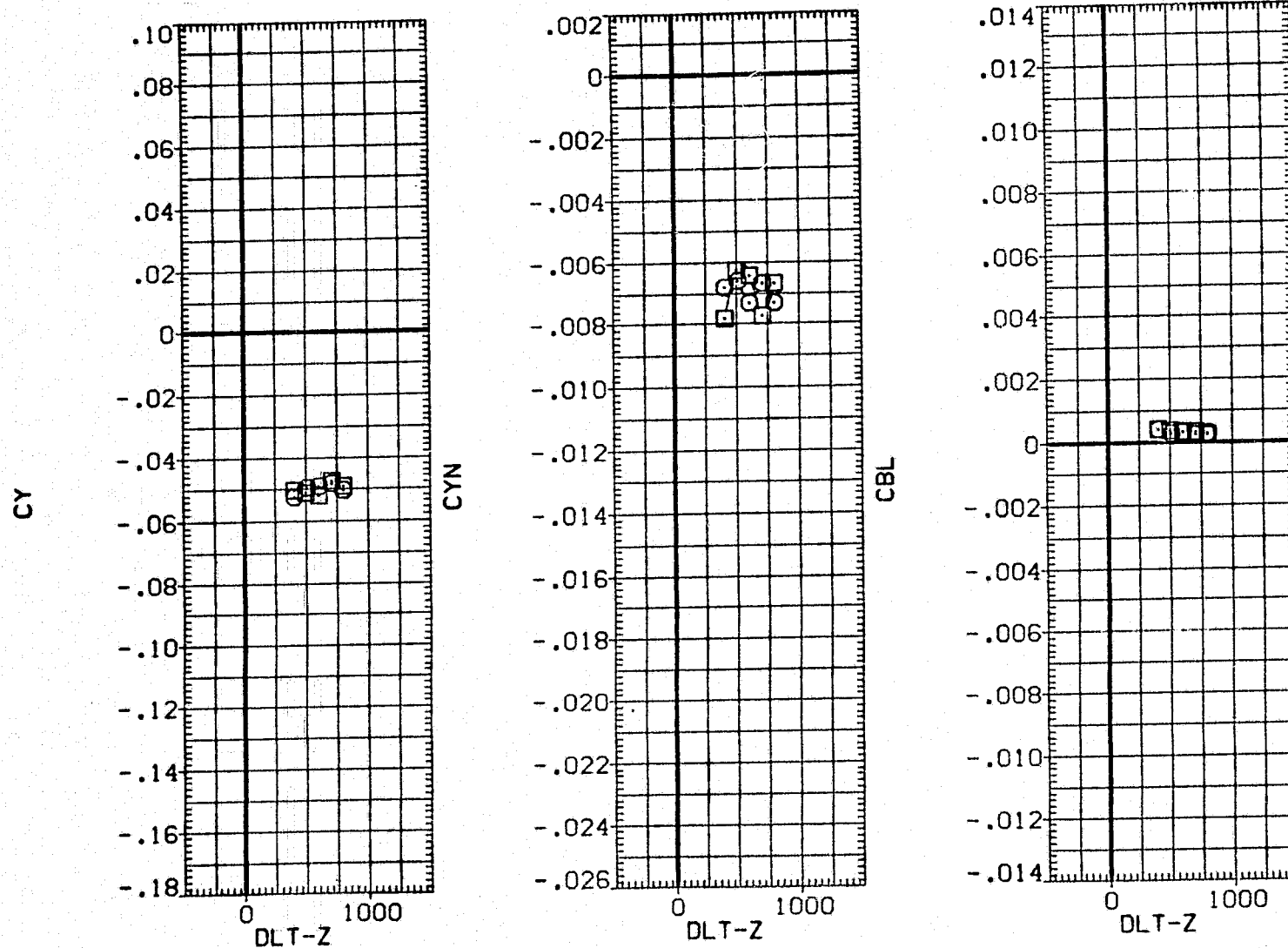


FIGURE 33 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR269)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	ALPHA	
□	.513	60.000	.000	
□	400.560	BETA	.000	DLTALF
		DLTBTA	3.000	MACH
		AILRON	.000	ELEVON
		GRID	13.000	

REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

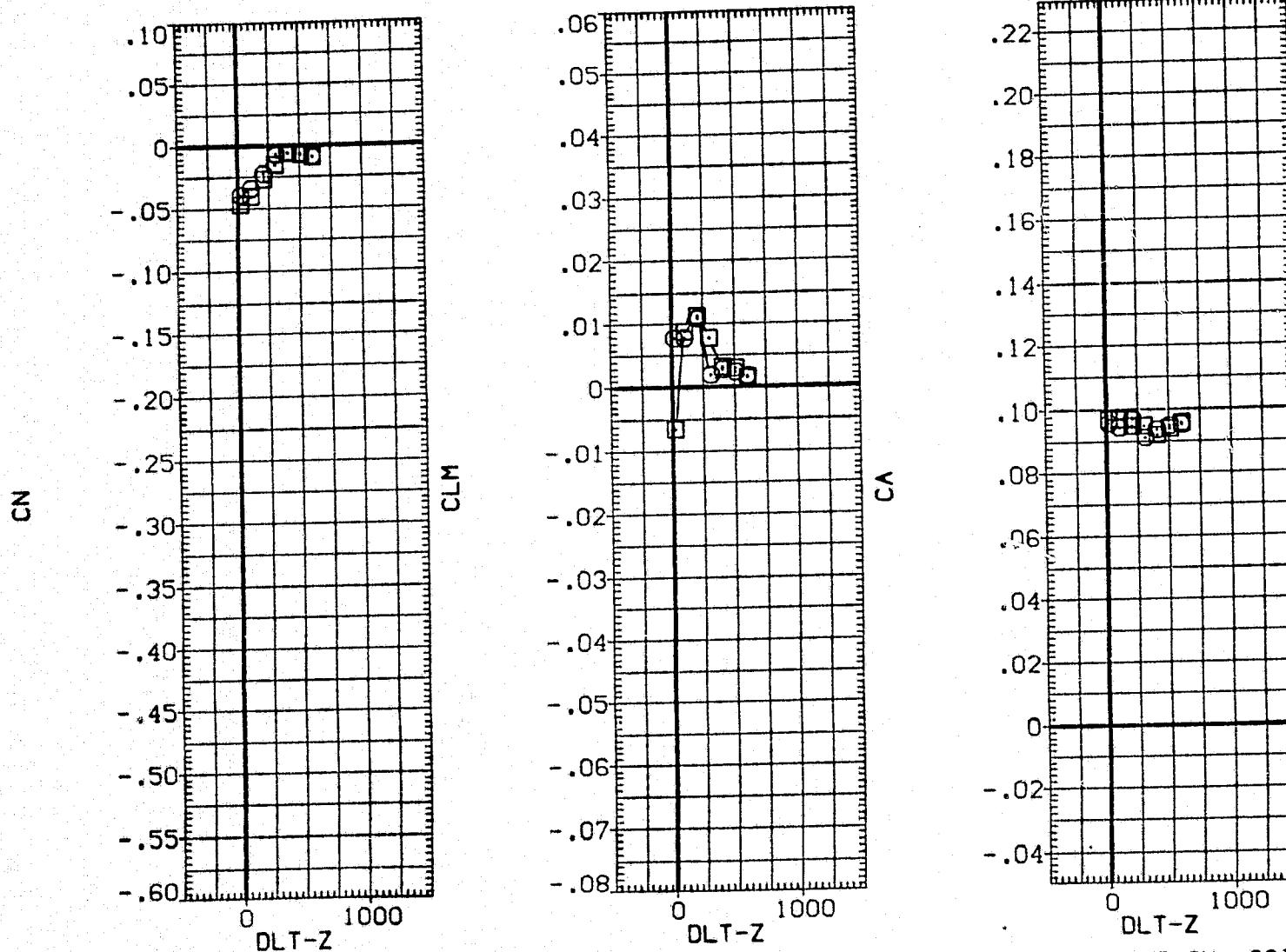


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR269)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.513		60.000	.000	
□	400.560	BETA	.000	DLTALF	.000
		DLTBTA	3.000	MACH	5.930
		ATLRON	.000	ELEVON	-20.000
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

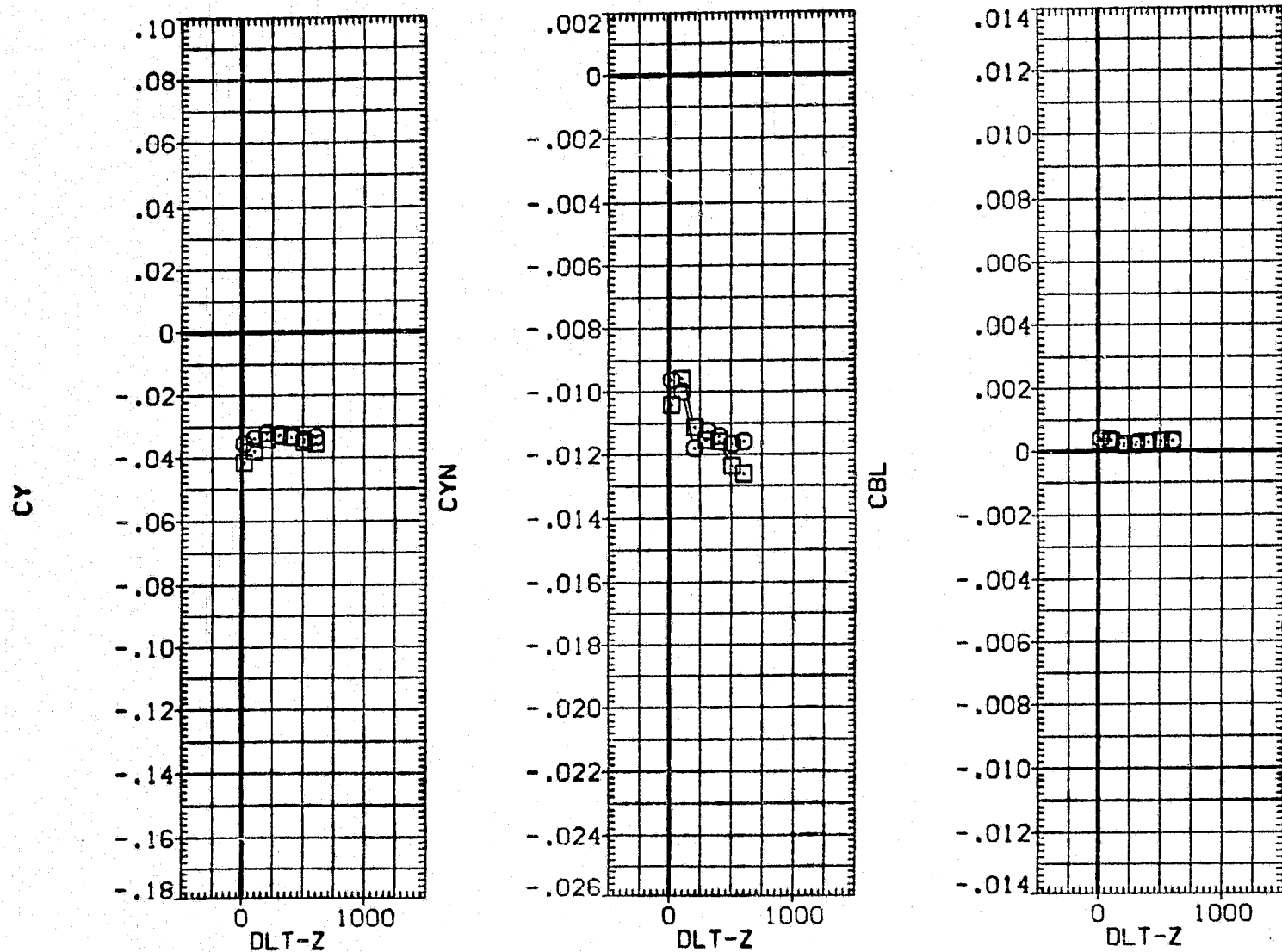


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR270)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.514	60.000	DLTALF	.000
□	400.350	.000	MACH	-10.000
		3.000	ELEVON	5.930
		.000		-20.000
		13.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

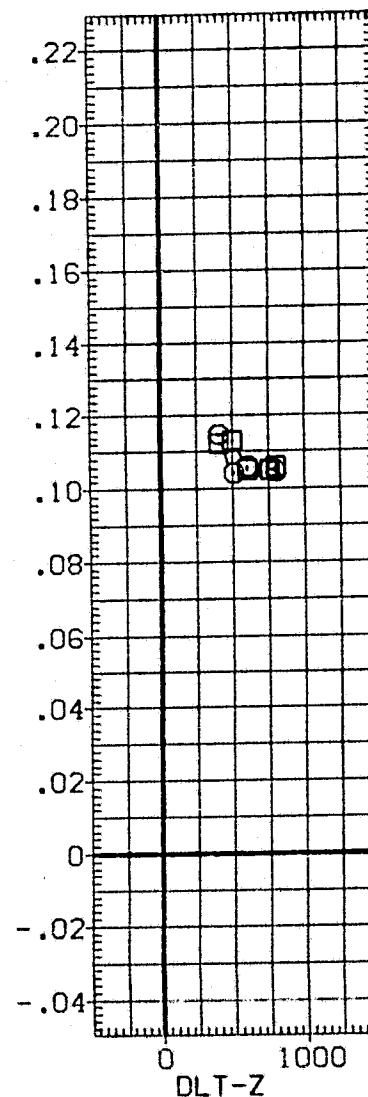
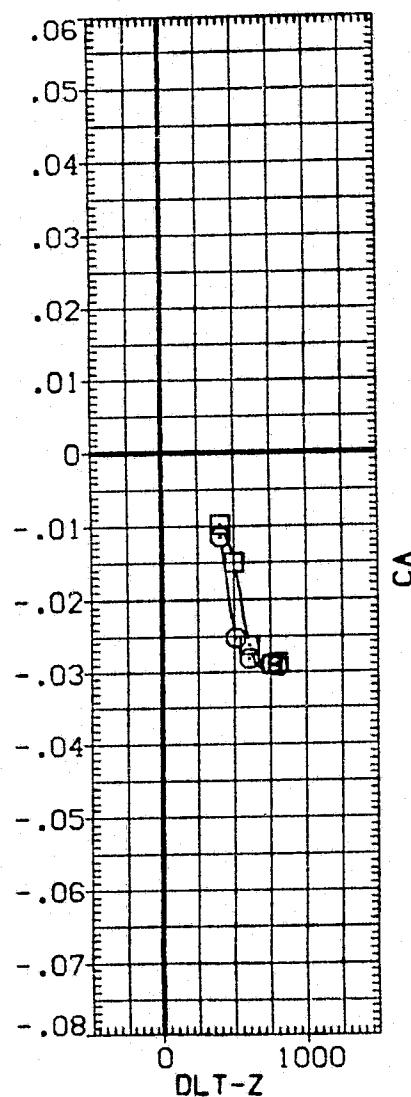
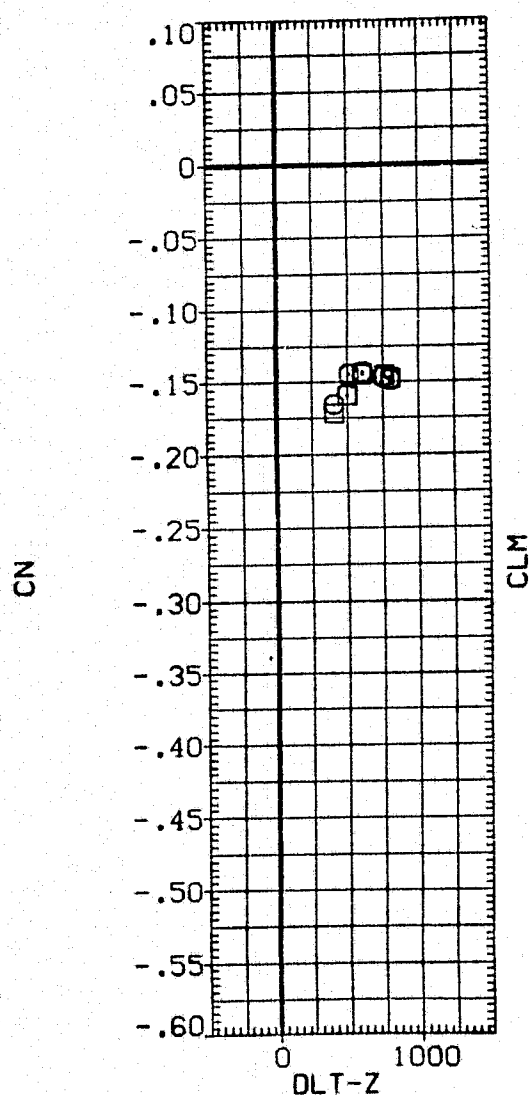


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR270)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.514	60.000	DLTALF	.000	
□	400.350	.000	MACH	-10.000	
		3.000	ELEVON	5.930	
		.000		-20.000	
		13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

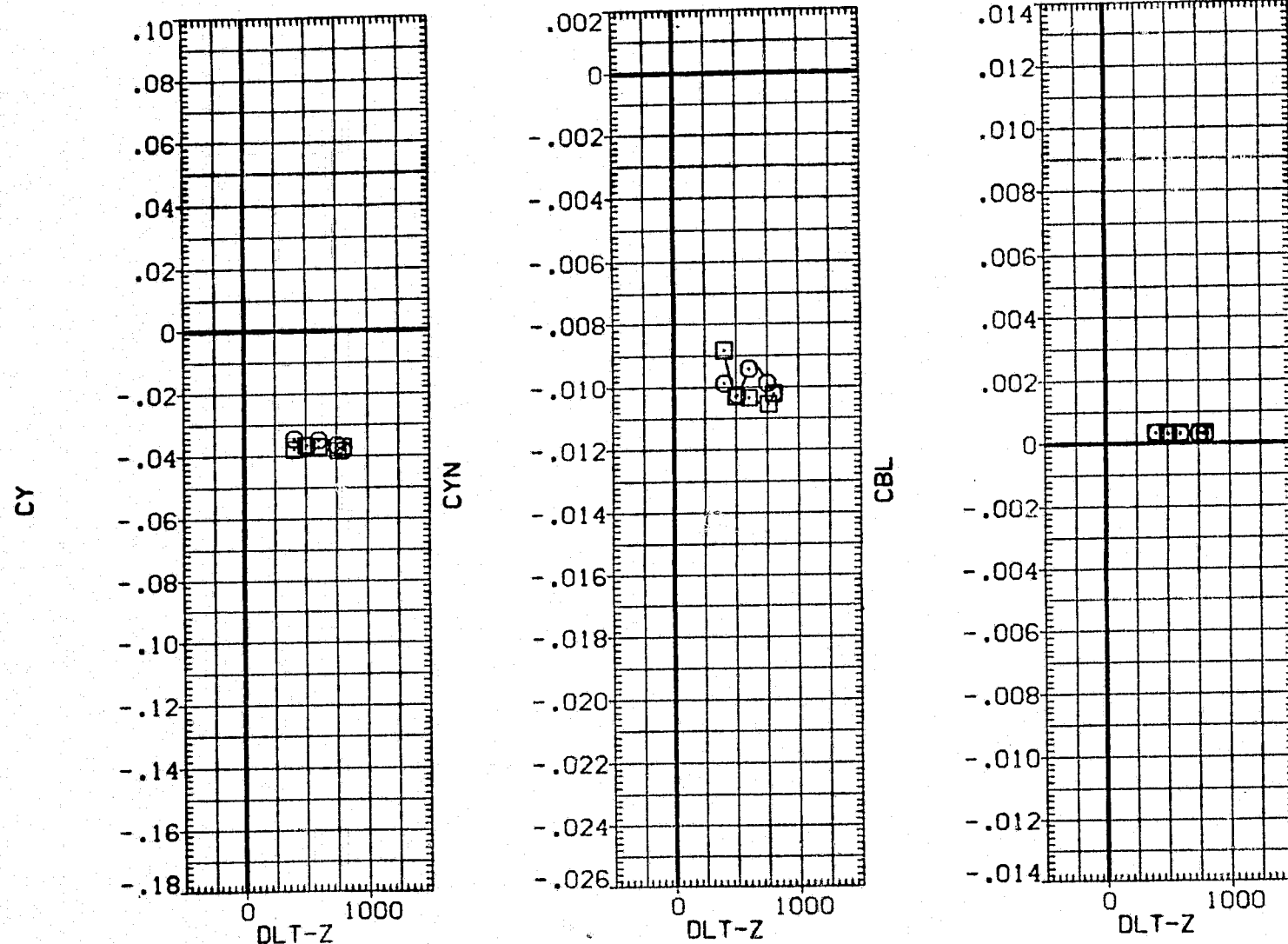


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR272)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.531	60.000	ALPHA	.000
□	400.460	BETA	DLTALF	-20.000
		DLTBTA	MACH	5.930
		AILRON	ELEVON	-20.000
		GRID		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. YT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

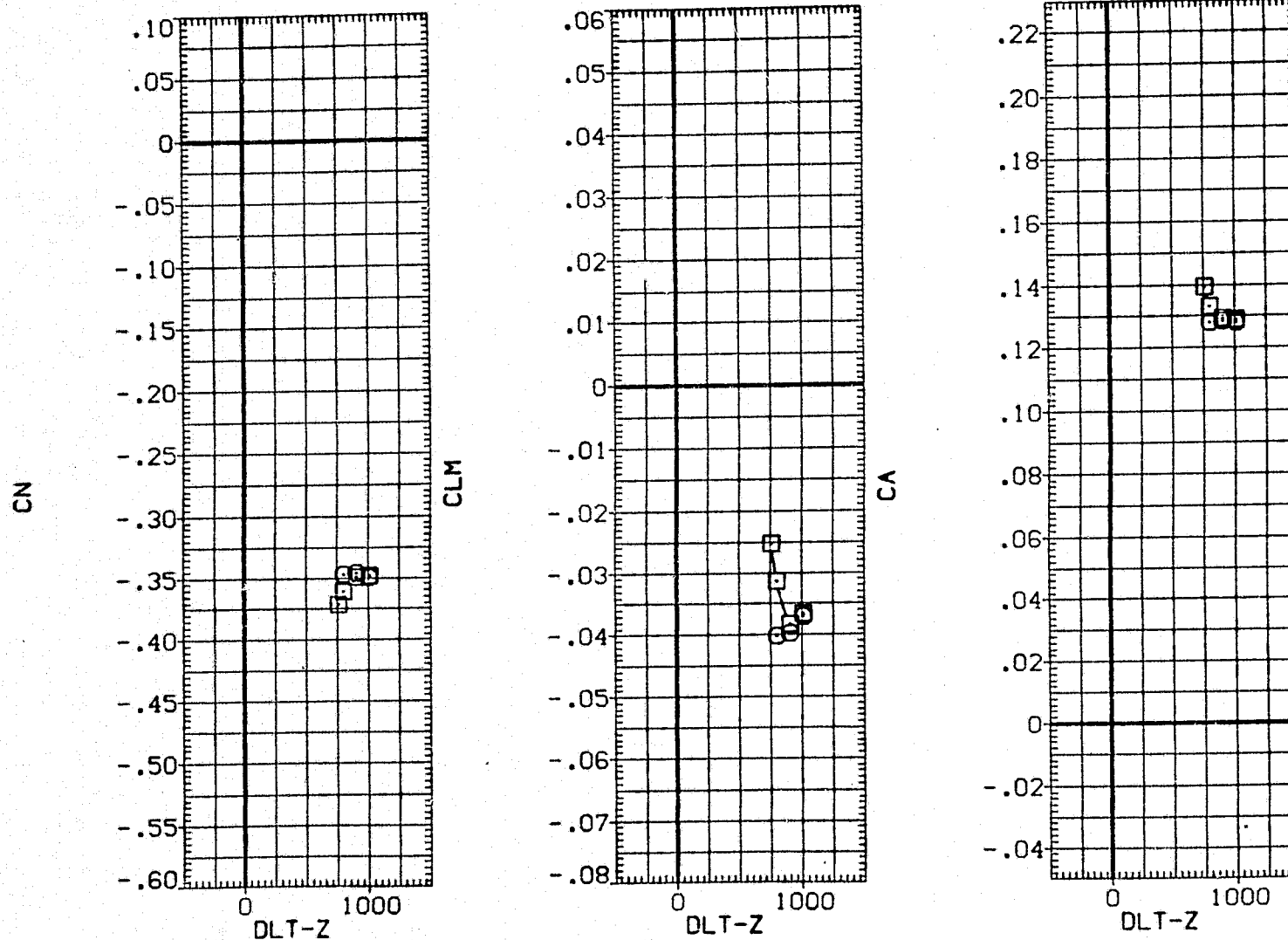


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR272)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.531	60.000	BETA	.000	
□	400.460	3.000	DLTALF	-20.000	
		.000	MACH	5.930	
		.000	ELEVON	-20.000	
		13.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. XT
ZMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

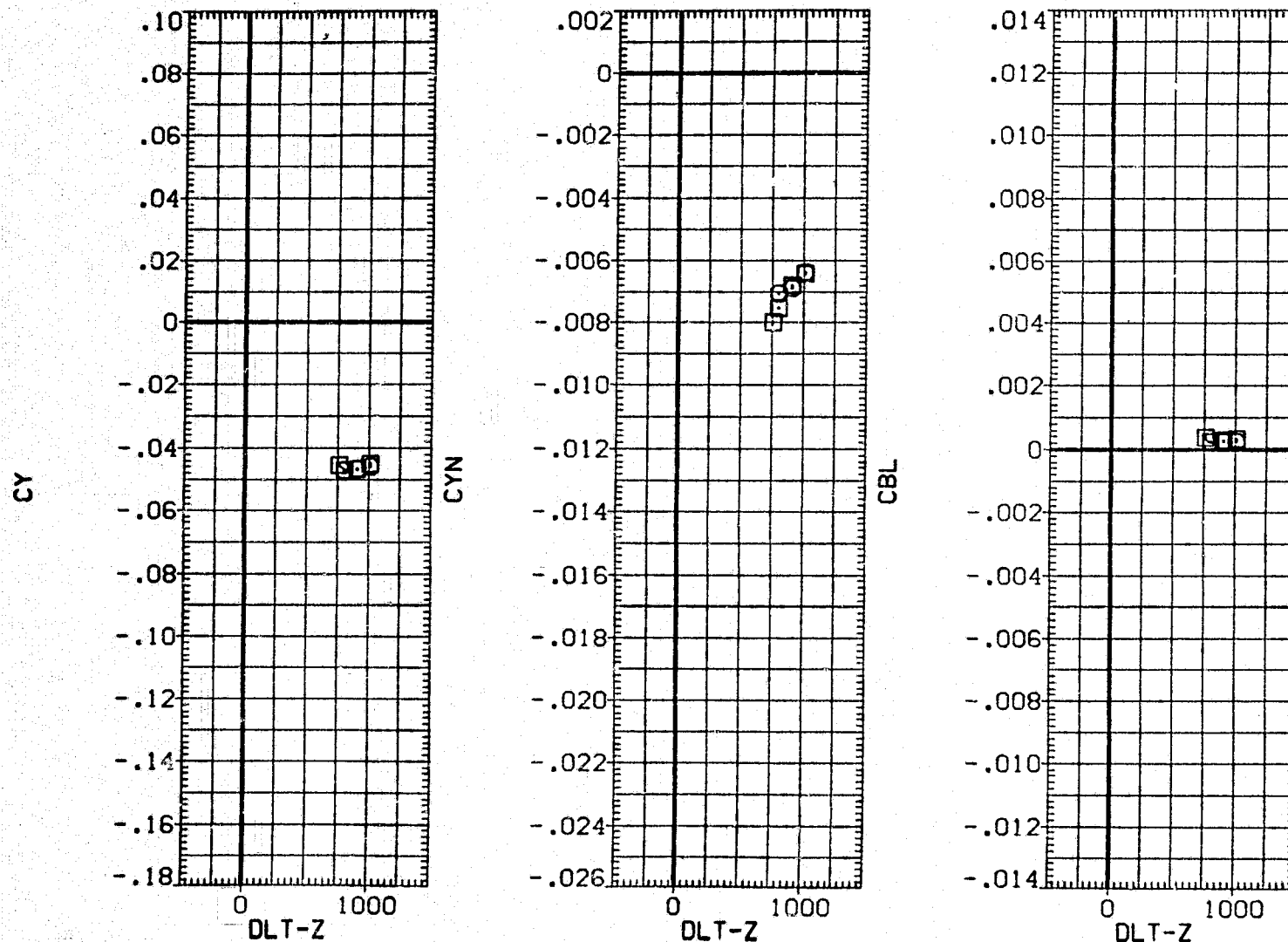


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR273)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	60.000	ALPHA	.000
	.617	BETA	3.000	DLTALF	.000
		DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	-20.000
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

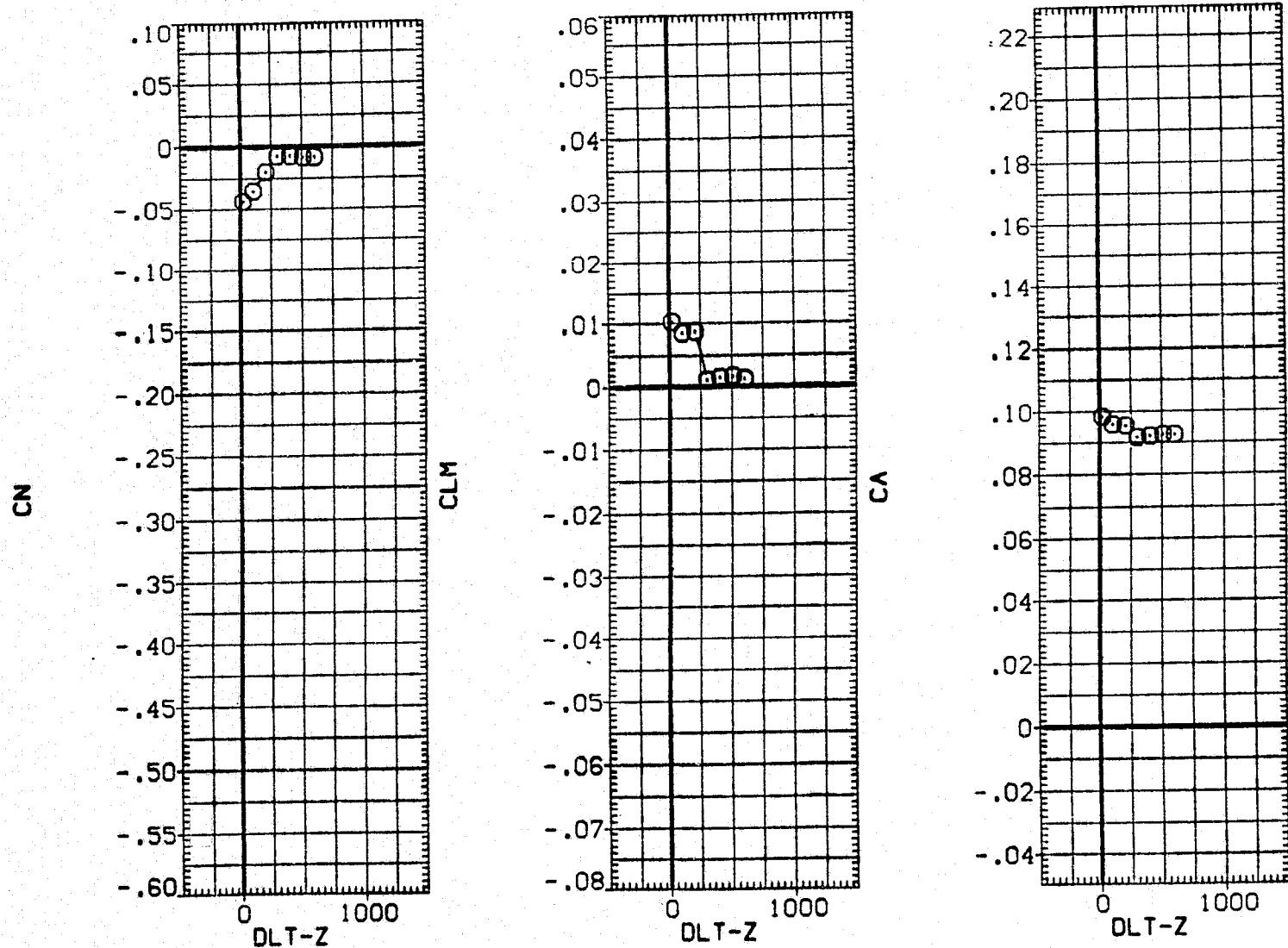


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR273)

SYMBOL		PARAMETRIC VALUES				
O	DLT-X	.617	DLT-Y	60.000	ALPHA	.000
			BETA	3.000	DLTALF	.000
			DLTBTA	3.000	MACH	5.930
			AILRON	.000	ELEVON	-20.000
			GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

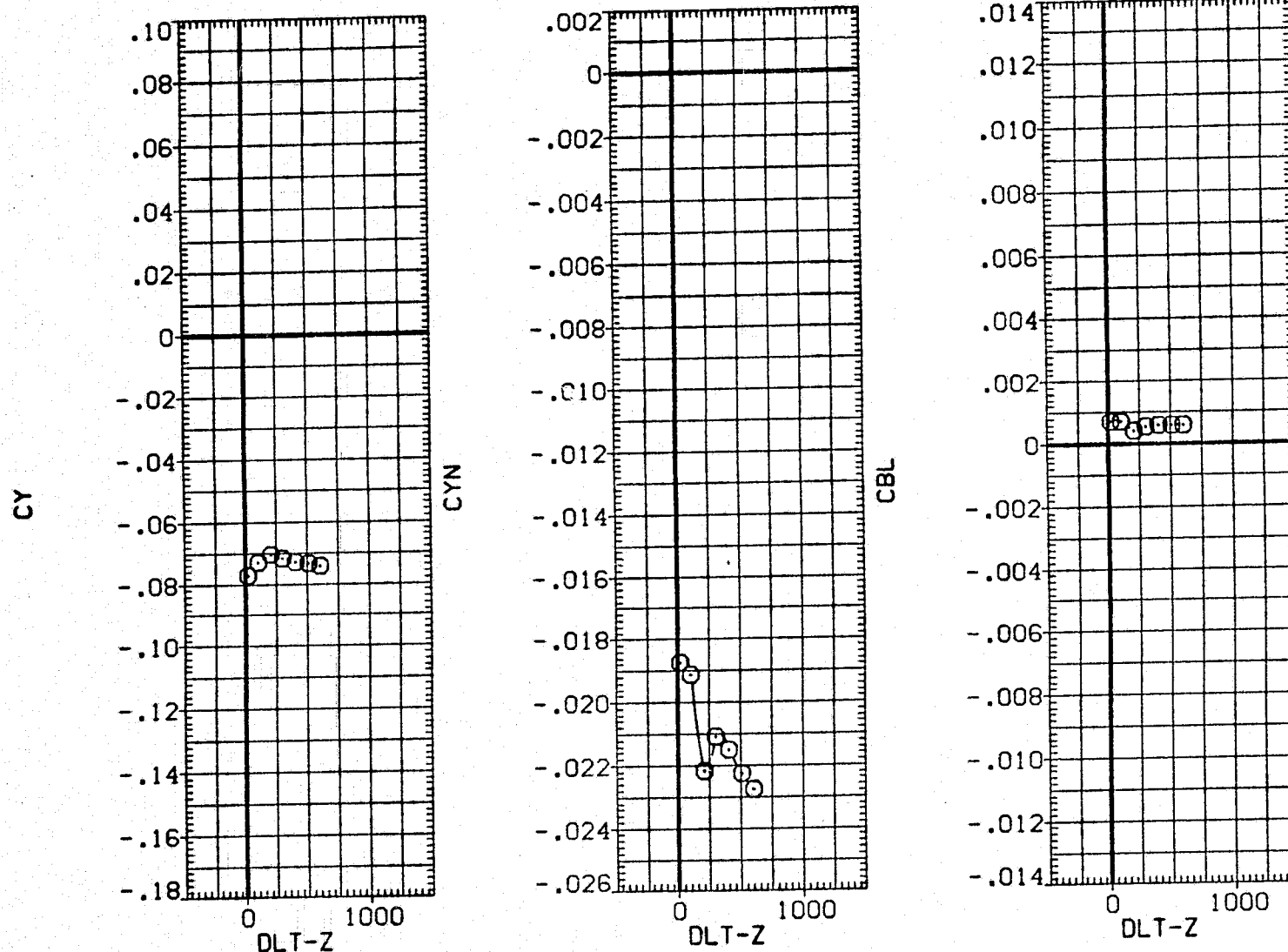


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR274)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	.547	DLT-Y	60.000	ALPHA	.000	
		BETA	3.000	DLTALF	-10.000	
		DLTBTA	3.000	MACH	5.930	
		AILRON	.000	ELEVON	-20.000	
		GRID	14.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

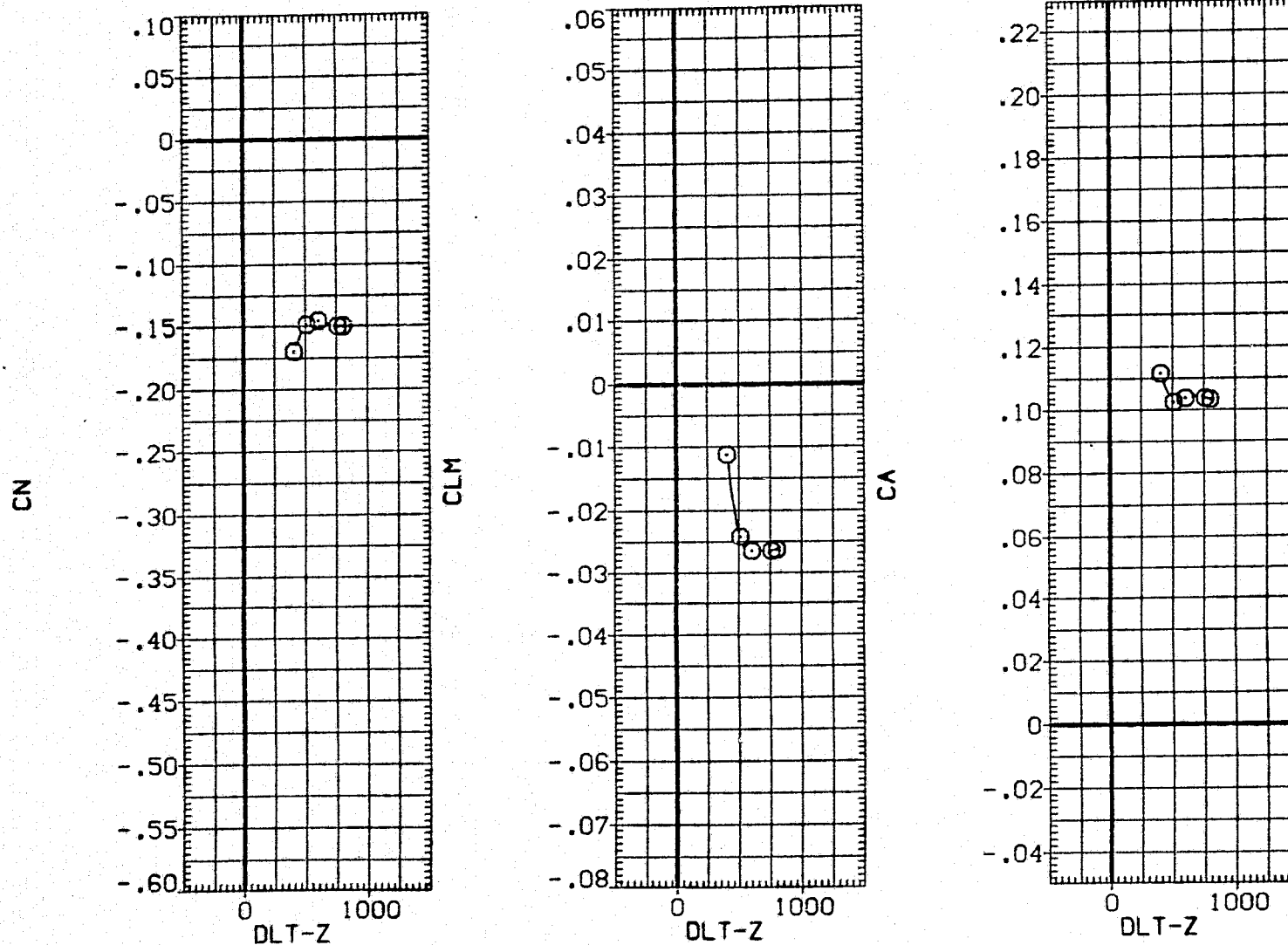


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR274)

SYMBOL
O

DLT-X
.547

DLT-Y
BETA
DLTBT
AILRON
GRID

PARAMETRIC VALUES

60.000	ALPHA	.000
3.000	DLTALF	-10.000
3.000	MACH	5.930
.000	ELEVON	-20.000
14.000		

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

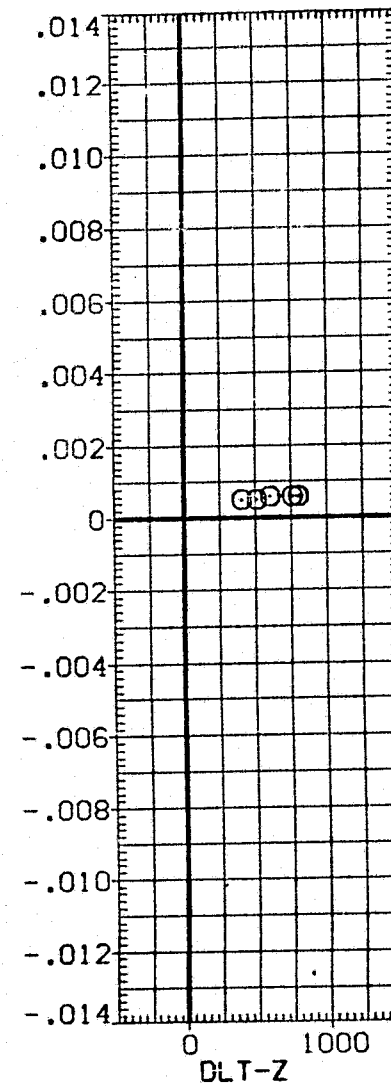
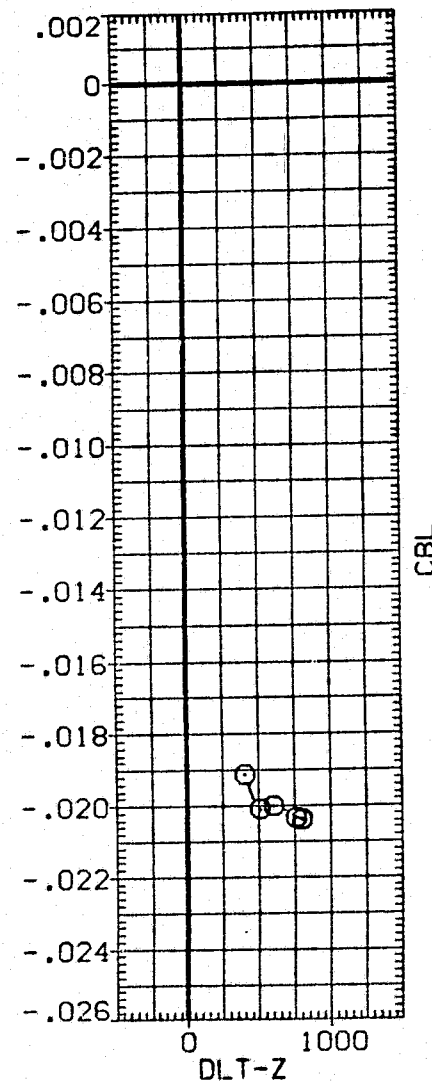
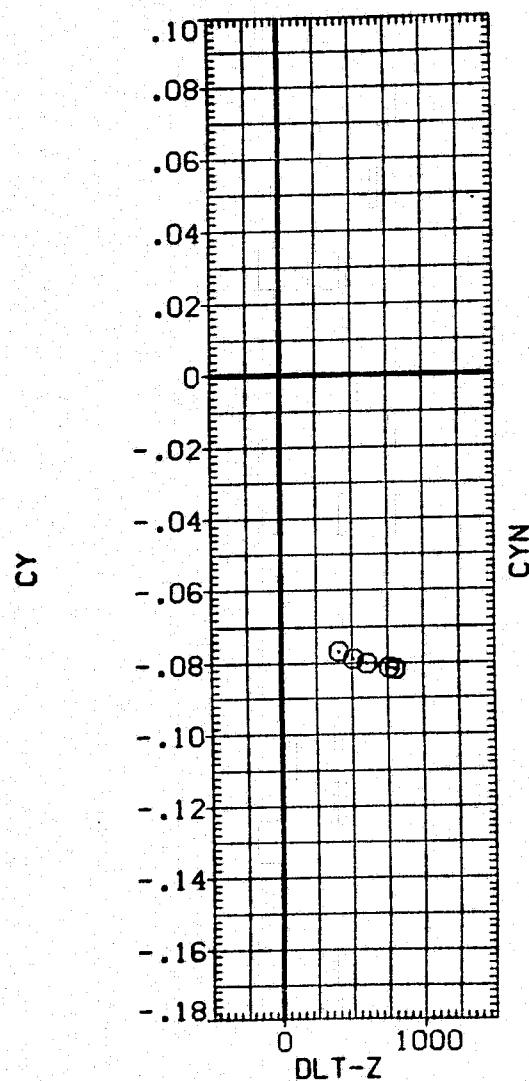


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR275)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
O	.462	BETA	60.000	.000	
		DLTALF	3.000	-20.000	
		MACH	3.000	5.930	
		ELEVON	.000	-20.000	
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

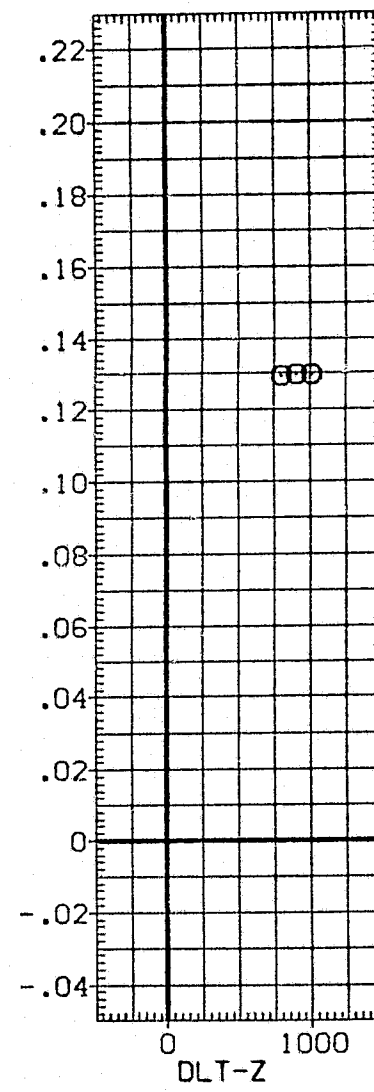
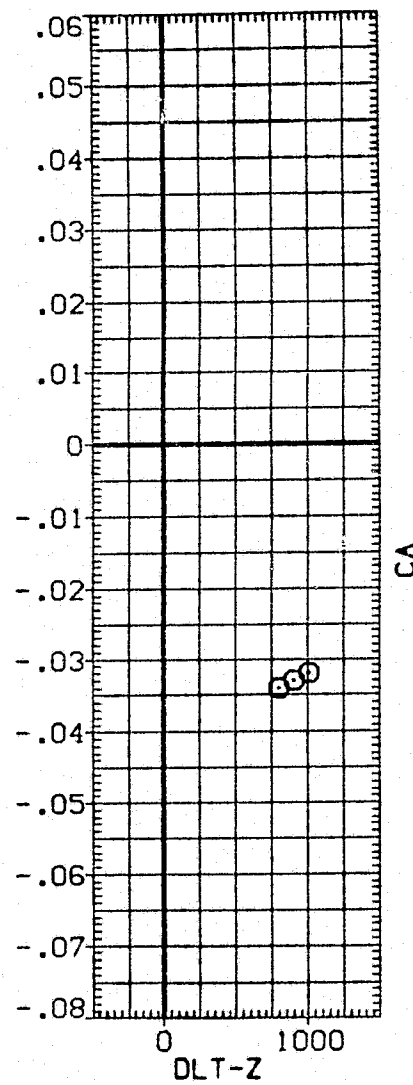
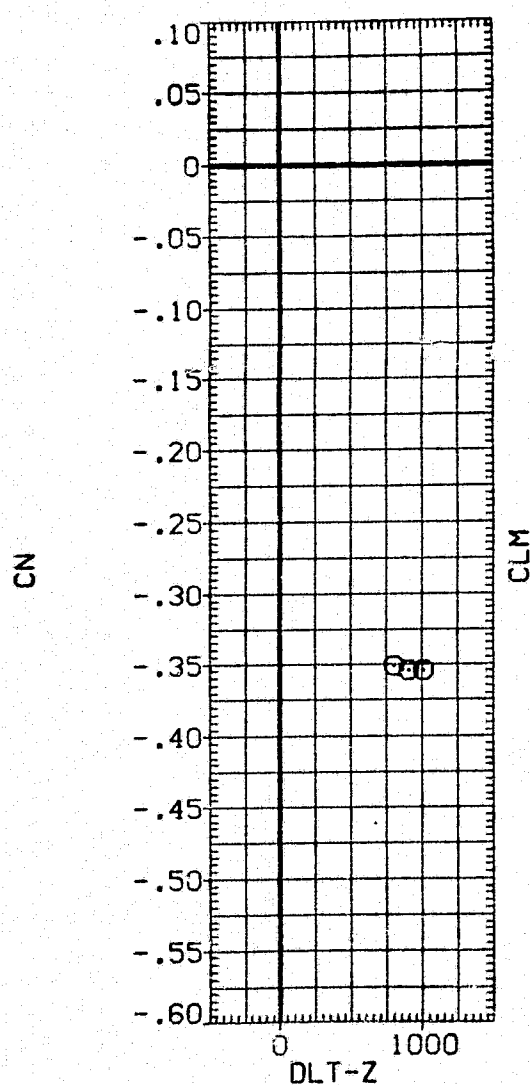


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR275)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.462	BETA	60.000	.000
		DLTBTA	3.000	-20.000
		AIRLON	.000	5.930
		GRID	14.000	-20.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

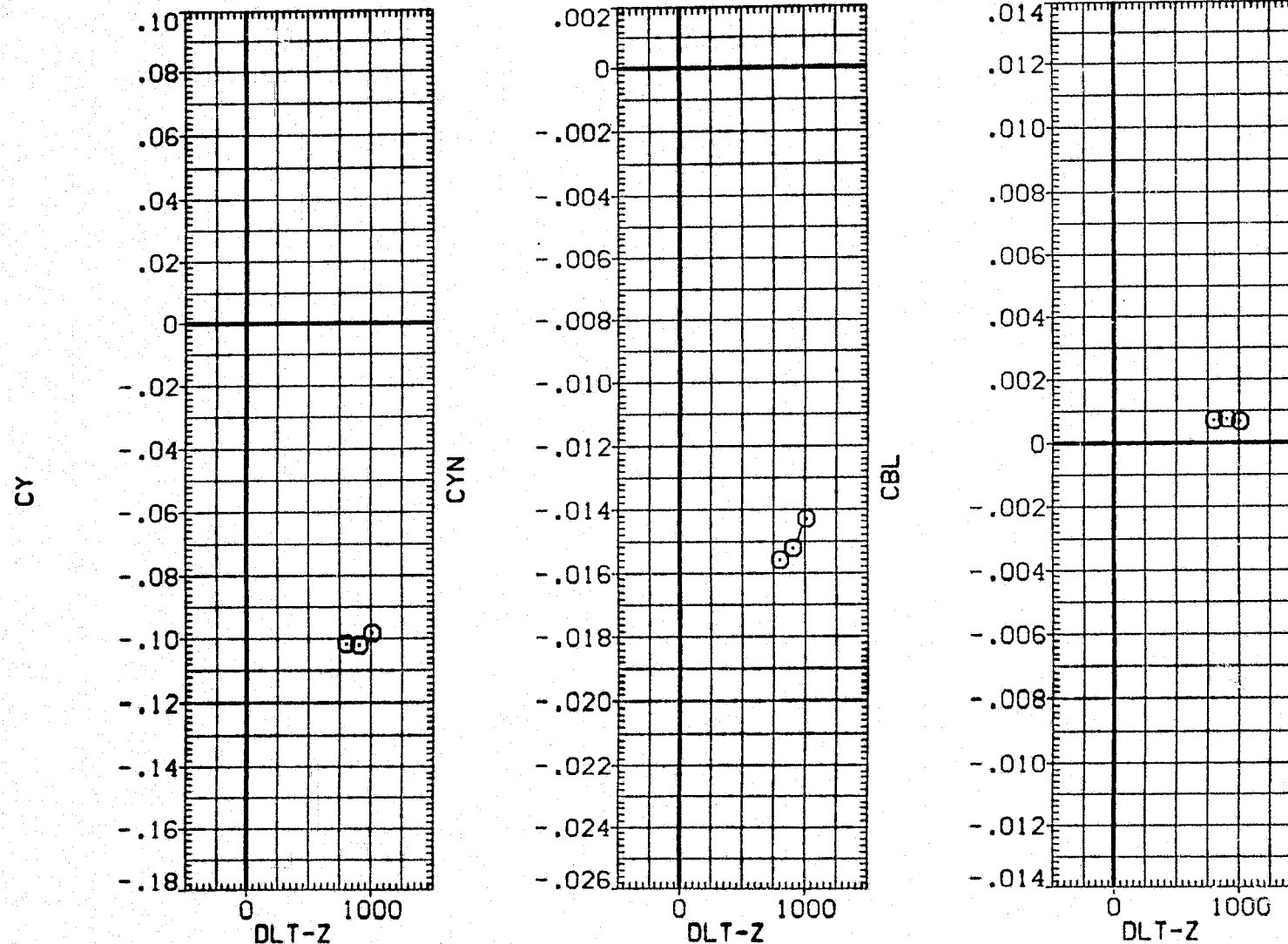


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR265)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
□	.616	60.000	ALPHA	5.000
○	400.560	.000	DLTALF	.000
		3.000	MACH	5.930
		.000	ELEVON	-20.000
		12.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

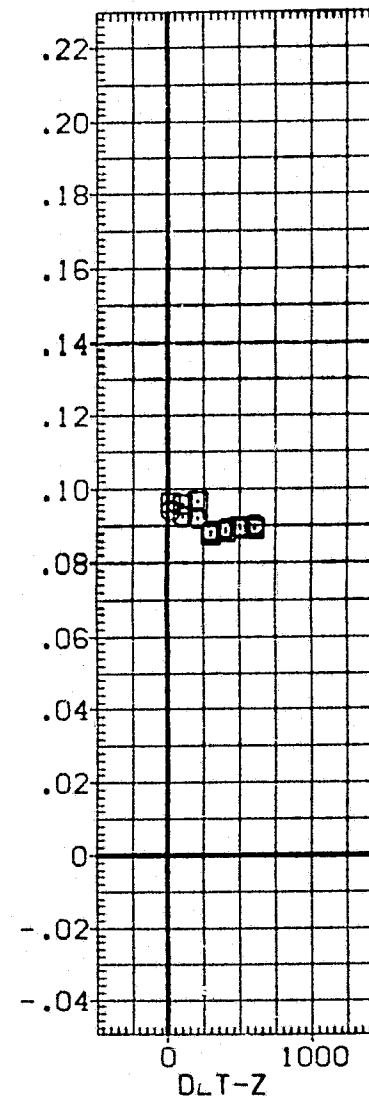
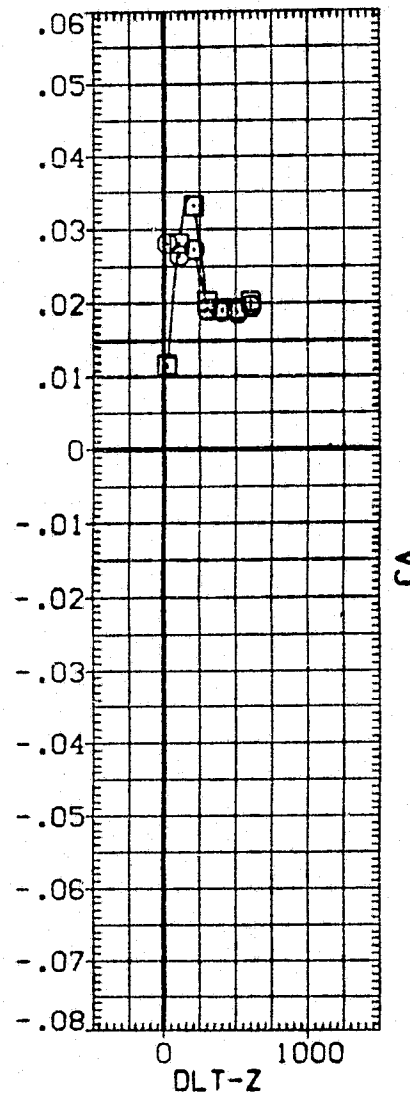
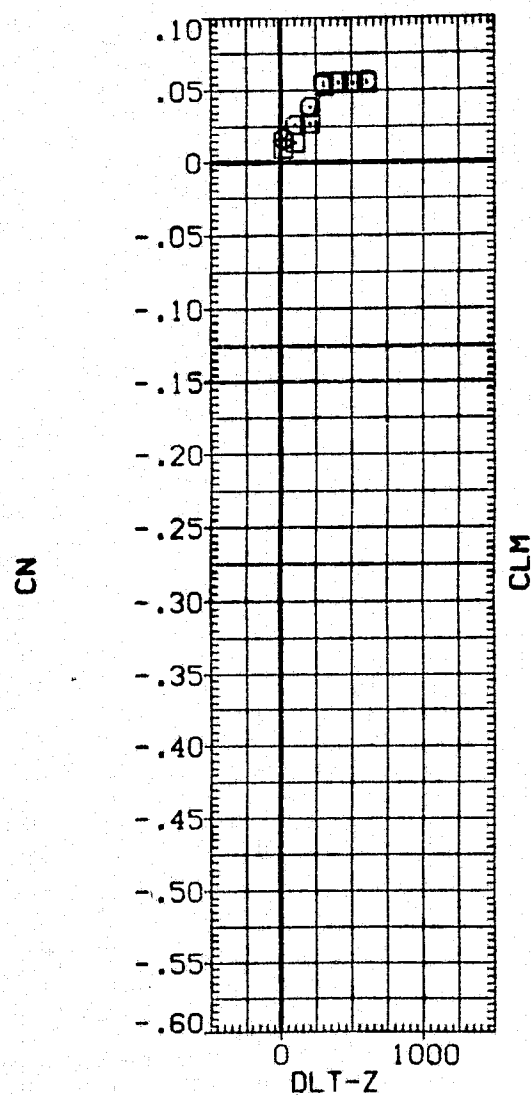


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR265)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.616	60.000	ALPHA	5.000
□	400.560	BETA	DLTALF	.000
		DLTBTA	MACH	5.930
		AILRON	ELEVON	-20.000
		GRID		
				12.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. YT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

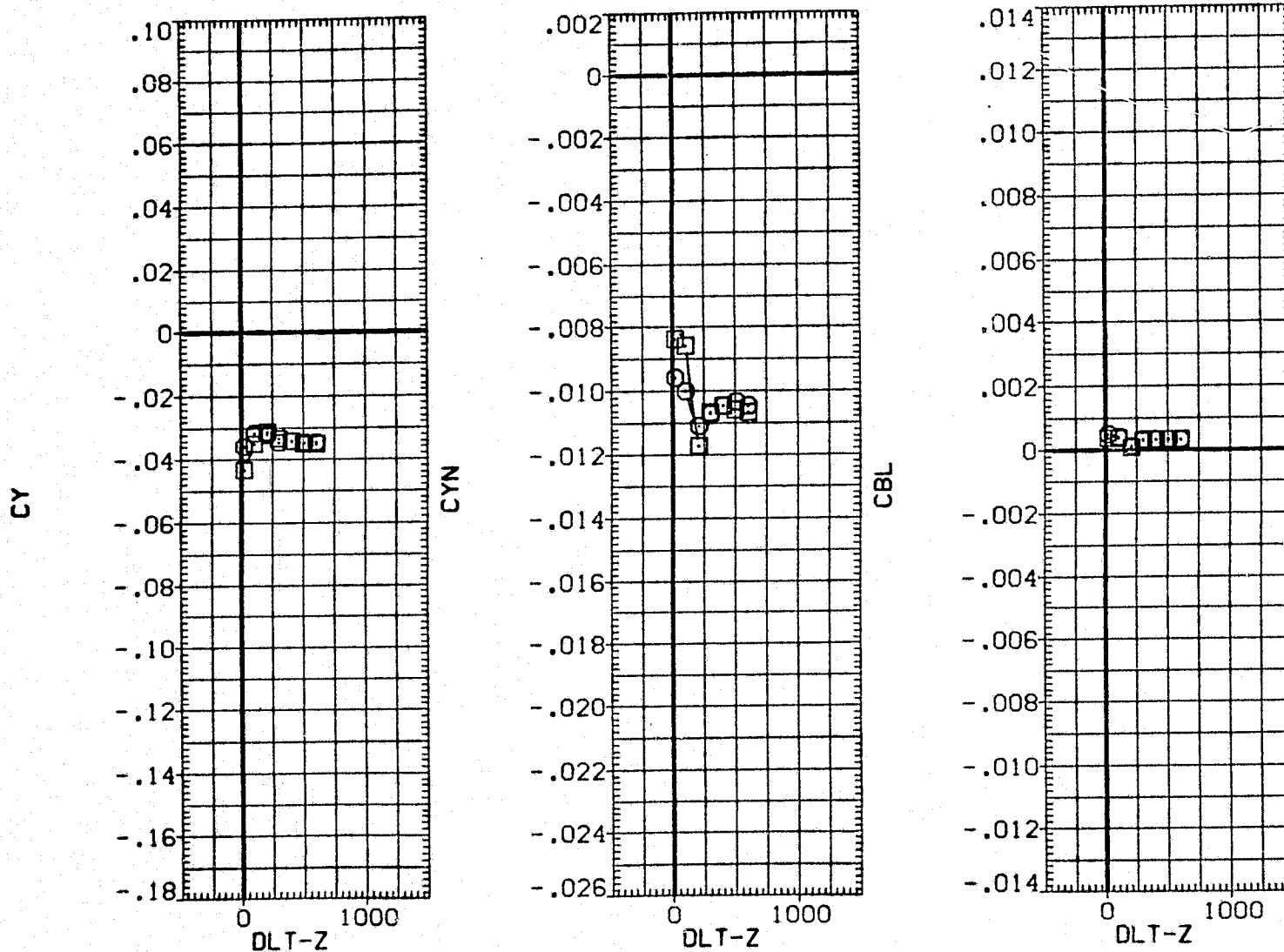


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR266)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.523	60.000	ALPHA	5.000
□	400.600	.000	DLTALF	-10.000
		3.000	MACH	5.930
		.000	ELEVON	-20.000
		12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

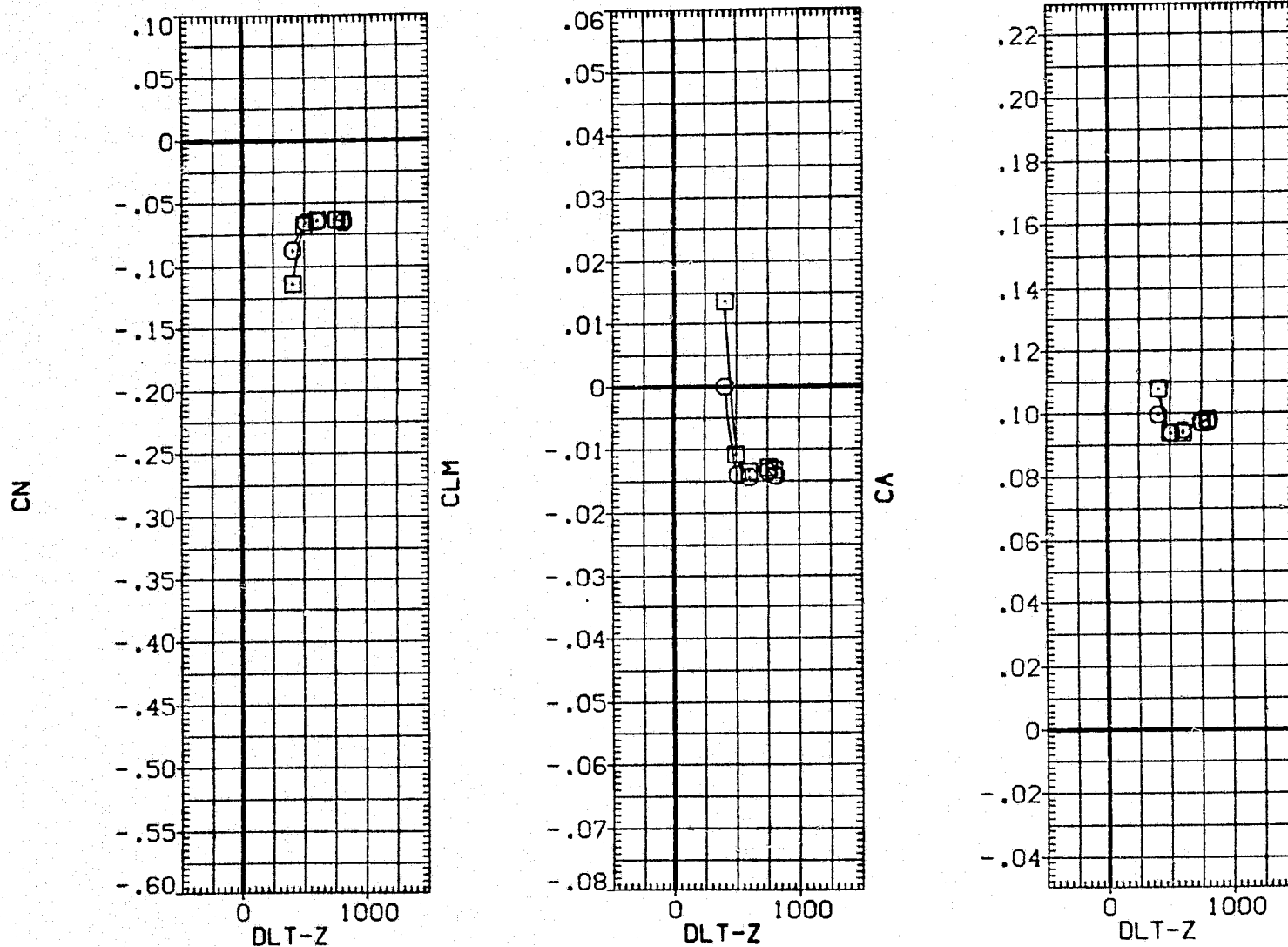


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR266)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.523	BETA	60.000	5.000	
□	400.600	DLTBT	.000	DLTALF	-10.000
		AILRON	3.000	MACH	5.930
		GRID	.000	ELEVON	-20.000
			12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

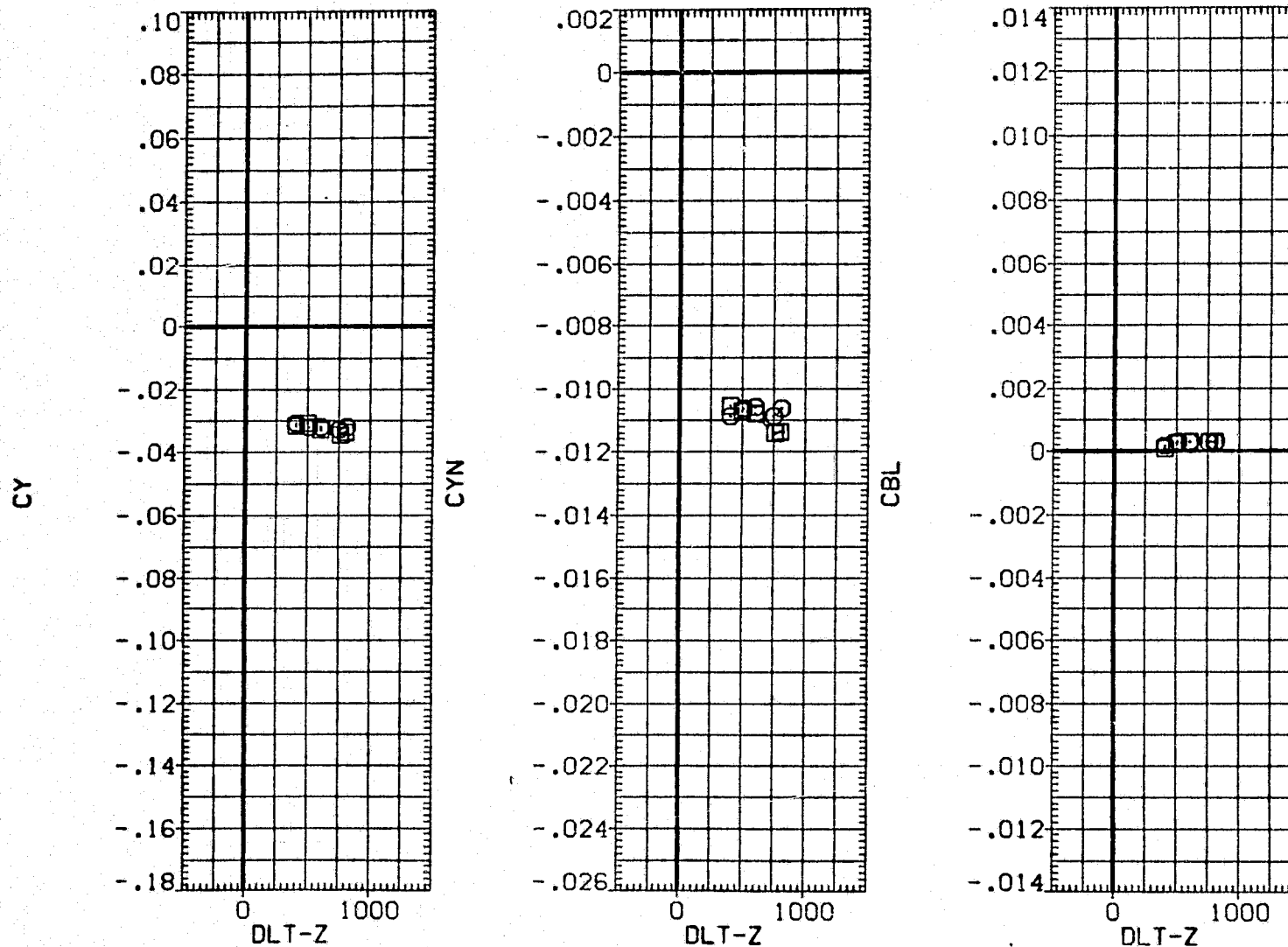


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR268)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.512	60.000		5.000	
□	400.440	BETA .000	DLTALF	-20.000	
		DLTETA	3.000	MACH	5.930
		AILRON	.000	ELEVON	-20.000
		GRID	12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

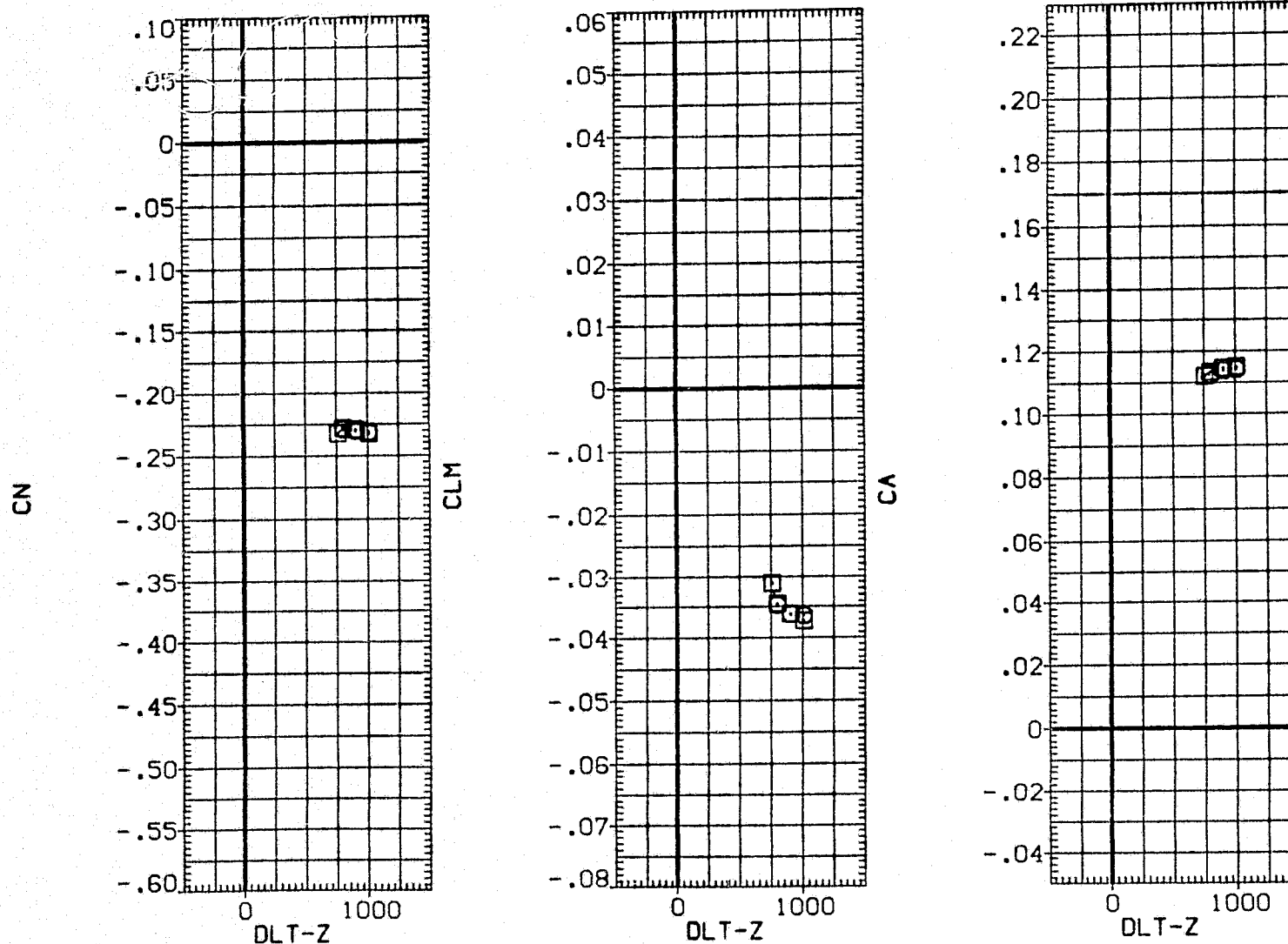


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR268)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.512	60.000	BETA	5.000
□	400.440	.000	DLTALF	-20.000
		3.000	MACH	5.930
		.000	ELEVON	-20.000
		12.000	GRID	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

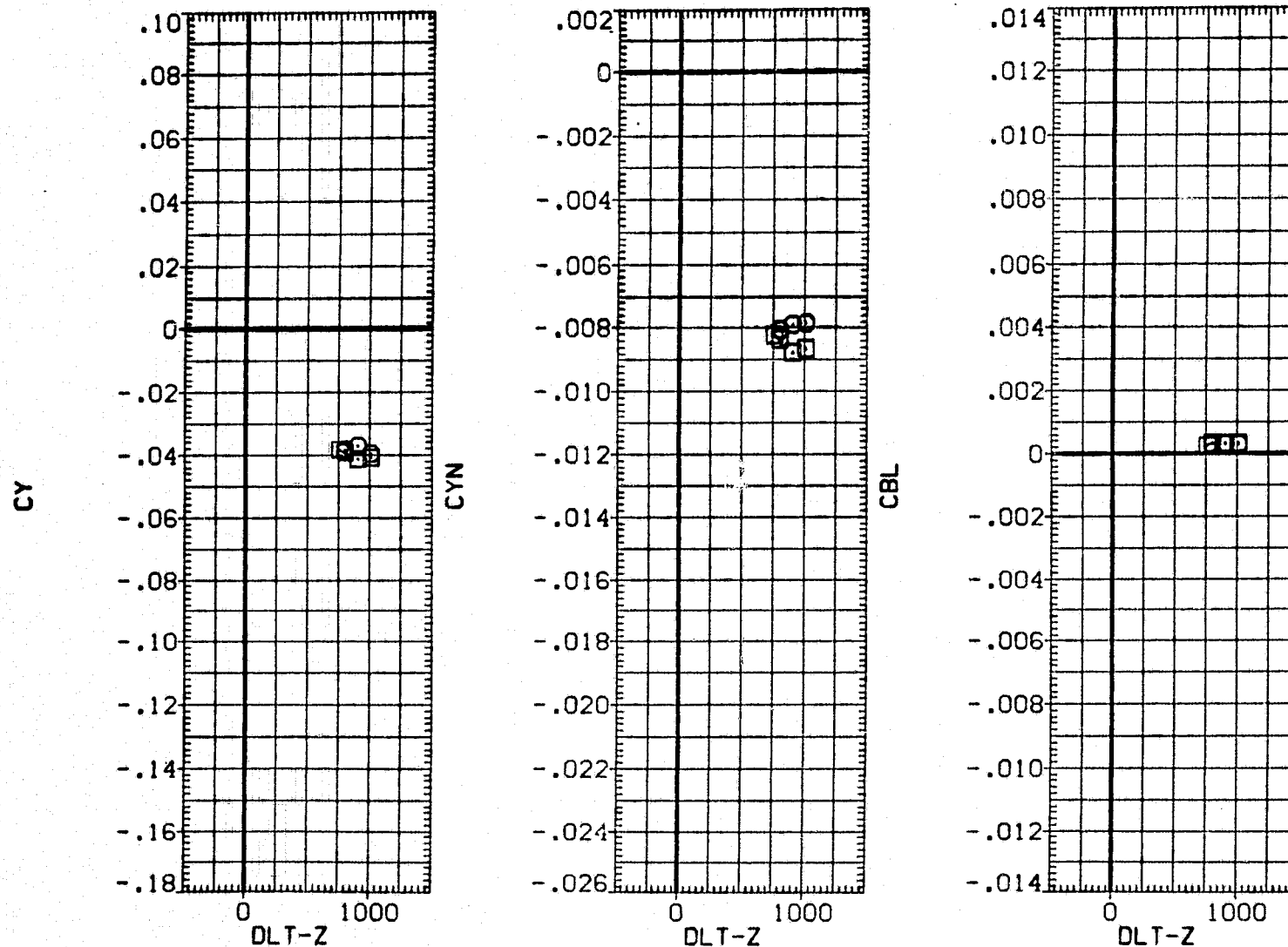


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR261)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.658		60.000	-5.000
□	400.450		.000	.000
		BETA	3.000	5.930
		DLTBTA	.000	ELEVON
		AILRON	11.000	
		GRID		

REFERENCE INFORMATION		
SREF	2690.0000	50.F7.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. XT
ZMRP	.0000	IN. YT
SCALE	416.4000	IN. ZT

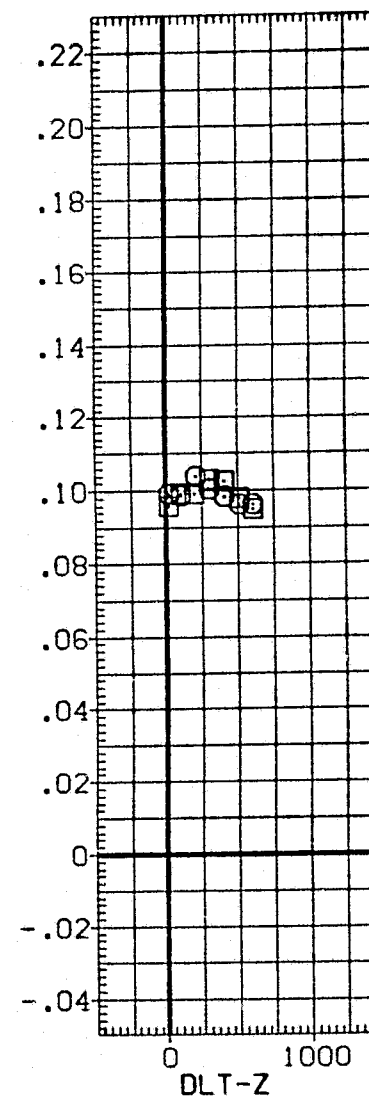
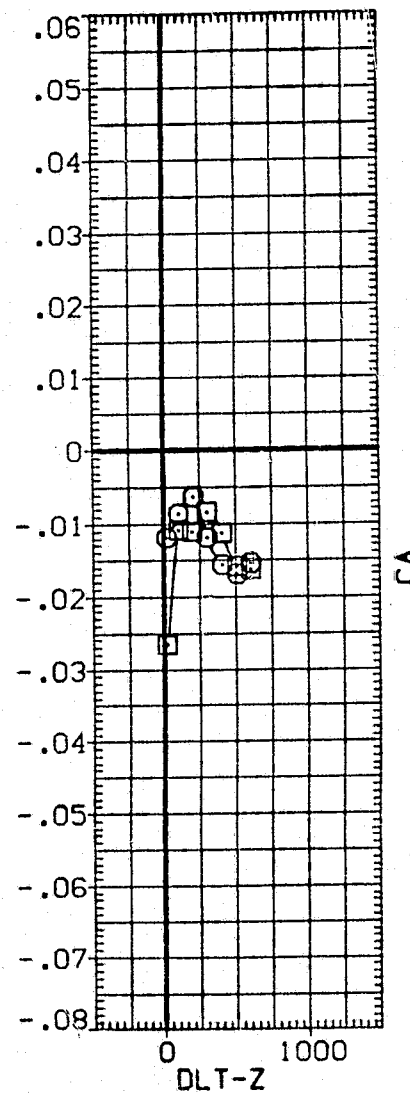
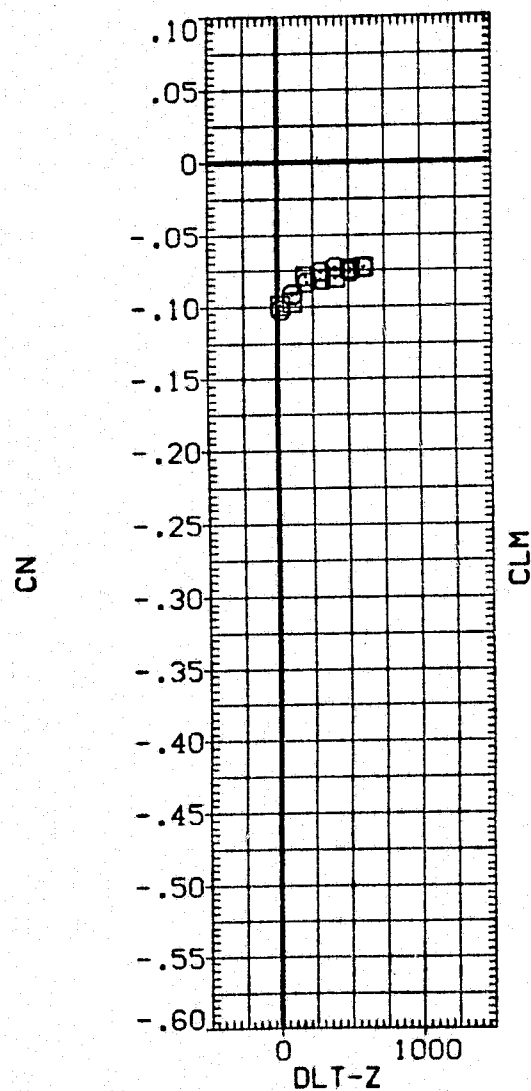


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR261)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.658	BETA	60.000	ALPHA
□	400.450	DLTBT	.000	DLTALF
		DLTBT	3.000	MACH
		ATLRON	.000	ELEVON
		GRID	11.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

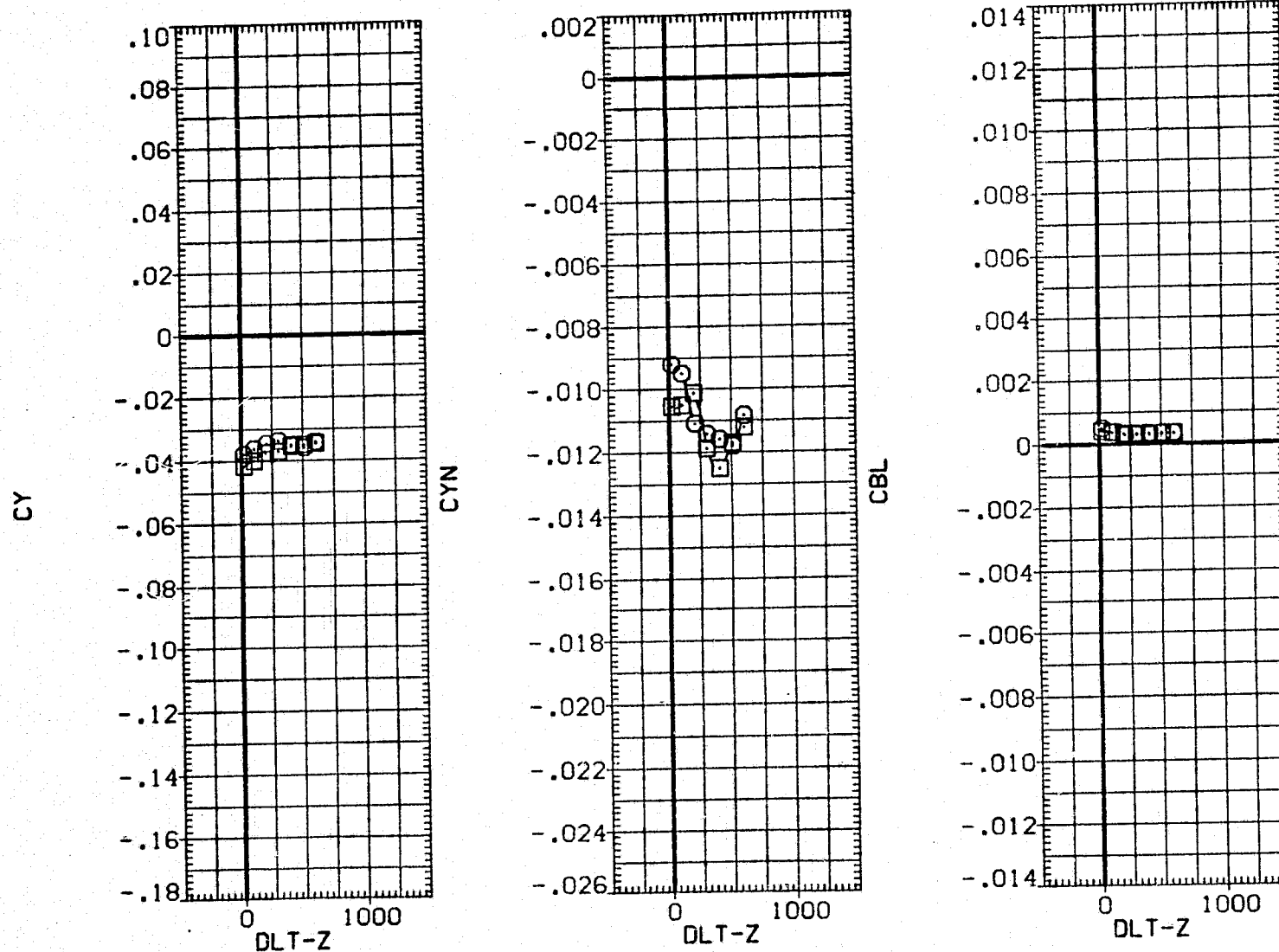


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR262)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	BETA	DLTBTA	AIRLON	GS 19	
○	.519	.000	.000	.000	11.000	ALPHA -5.000
□	400.400	.000	3.000	.000		DLTALF -10.000
						MACH 5.930
						ELEVON -20.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

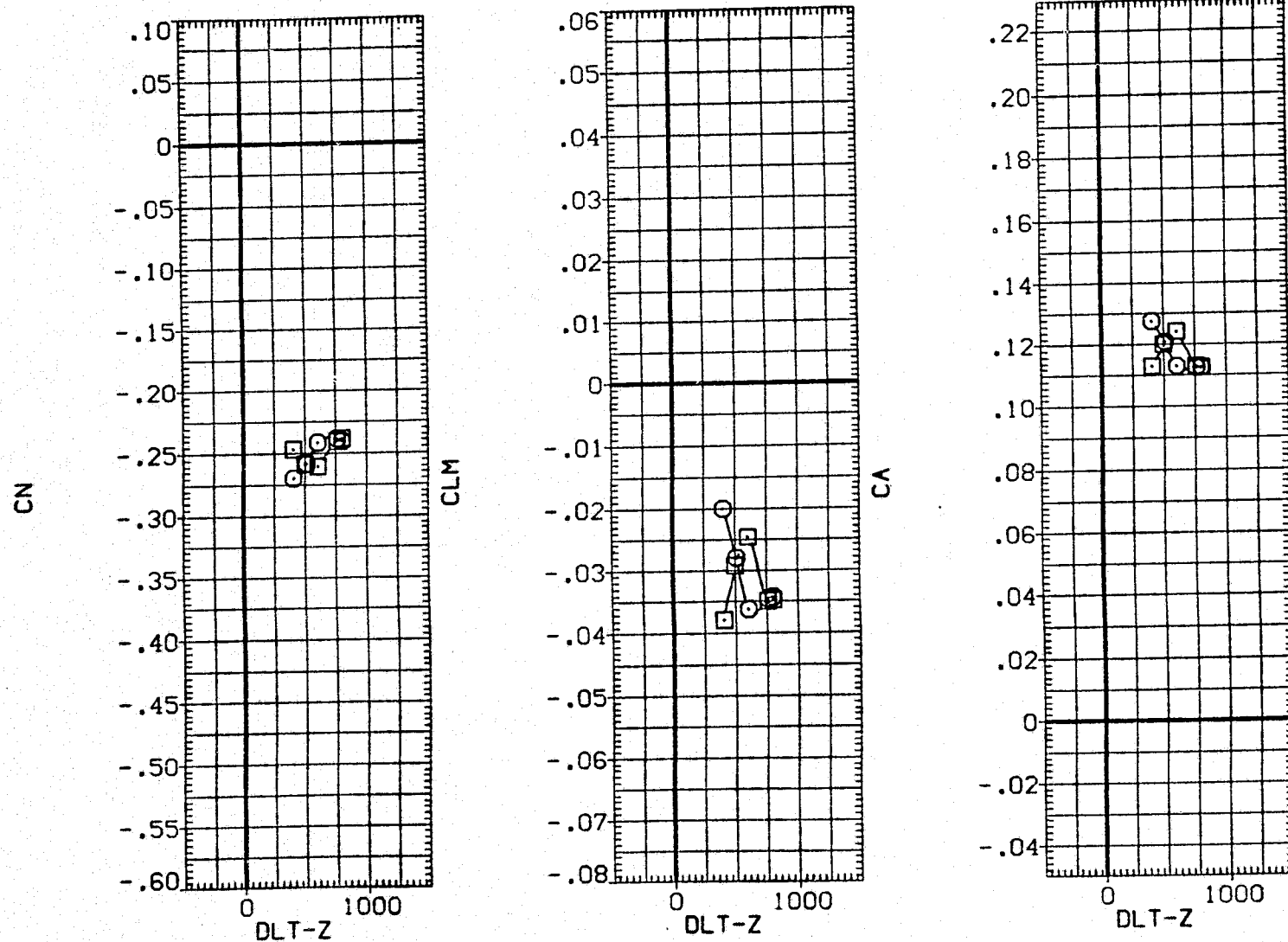


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR262)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	DLT-Z	ALPHA	ELEVON
○	.519	60.000	0.000	-5.000	-20.000
□	400.400	BETA	.000	DLTALF	-10.000
		DLTBT	3.000	MACH	5.930
		ATLRON	.000	ELEVON	-20.000
		GRID	11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

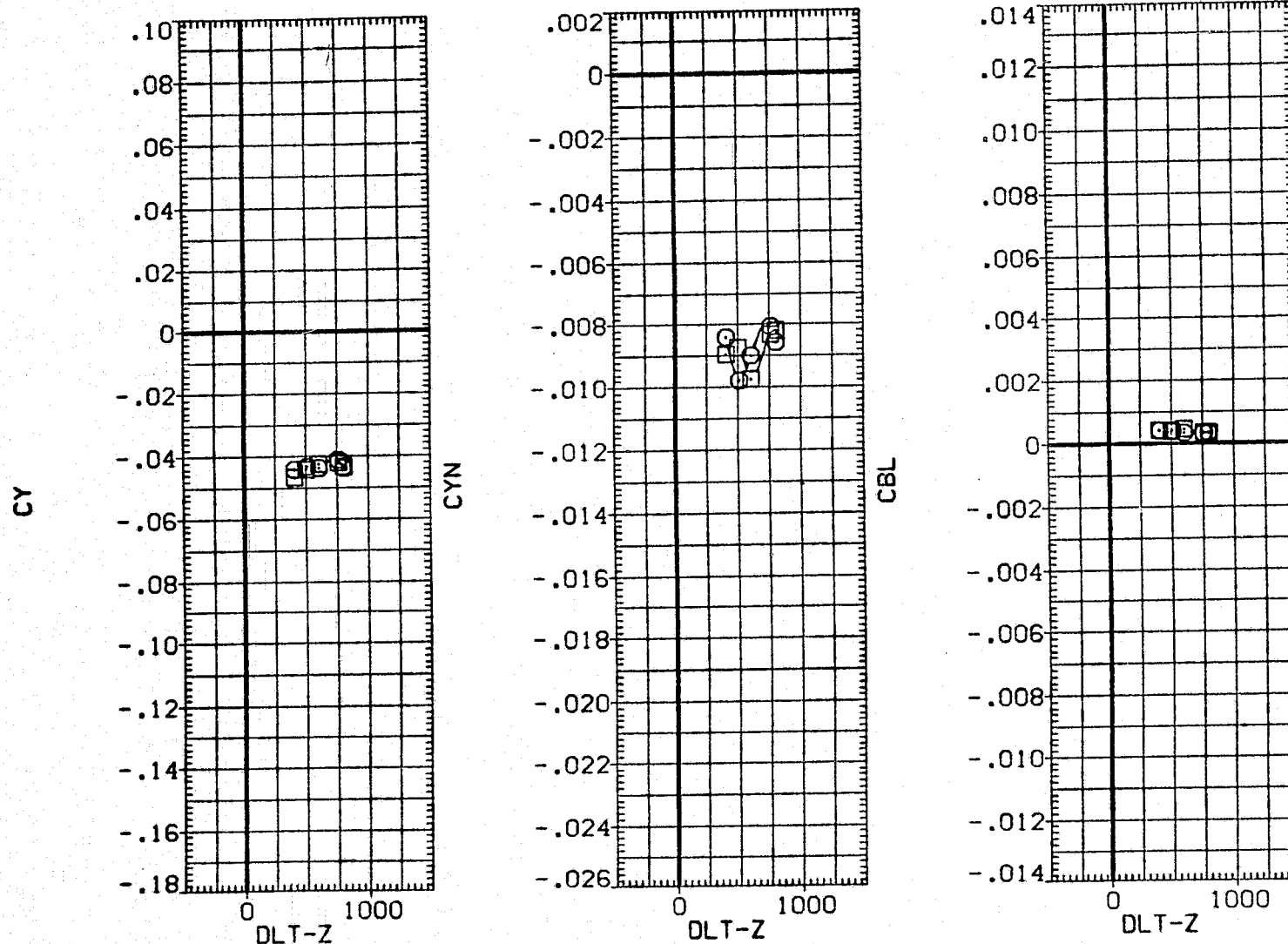


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR264)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.391	60.000	-5.000	-20.000	5.930	-20.000
□	400.530	.000				
		3.000				
		.000				
		11.000				

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

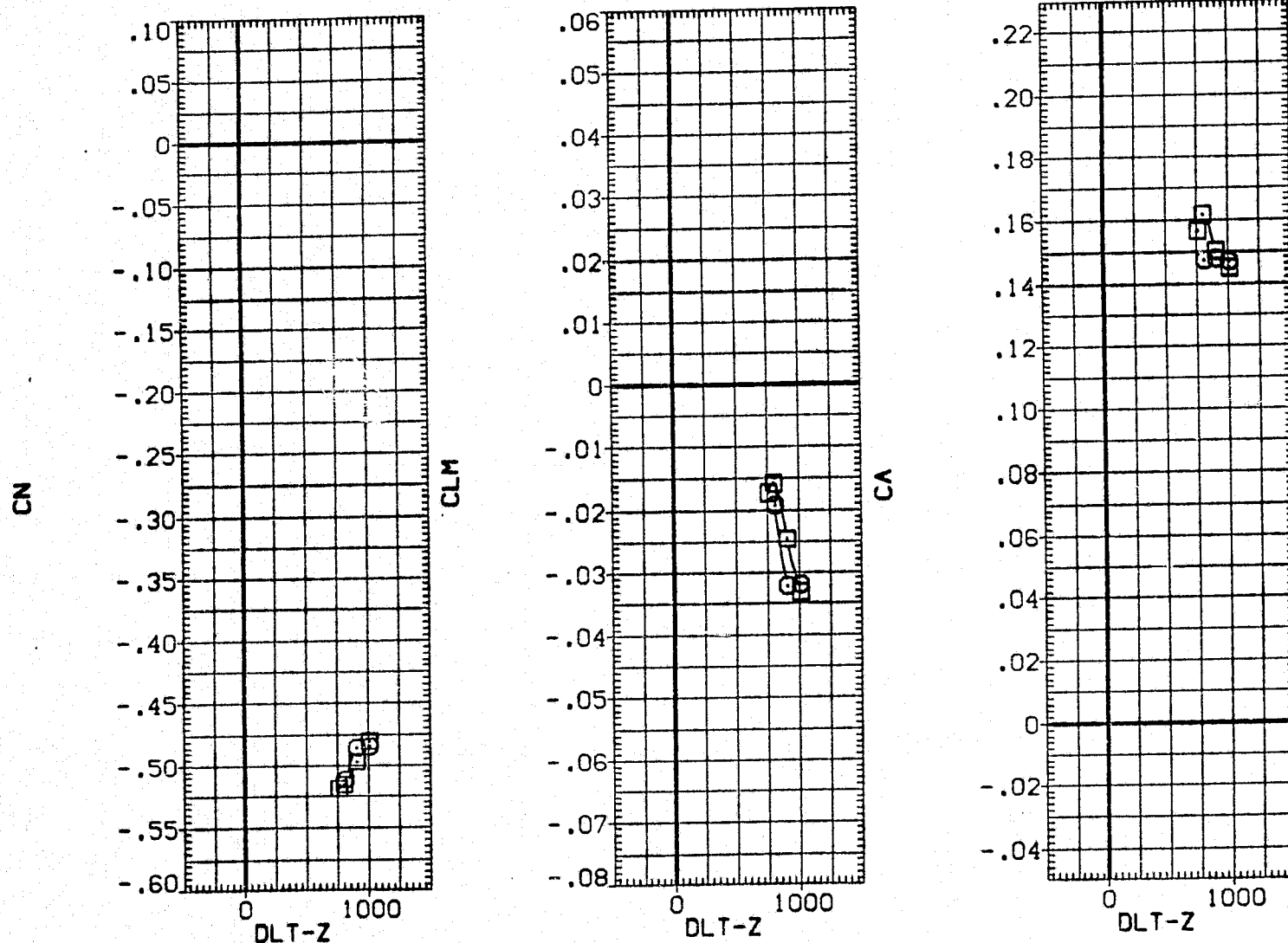


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR264)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.391	60.000	DLTALF	-5.000	
□	400.530	.000	MACH	-20.000	
		3.000	ELEVON	5.930	
		.000		-20.000	
		11.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

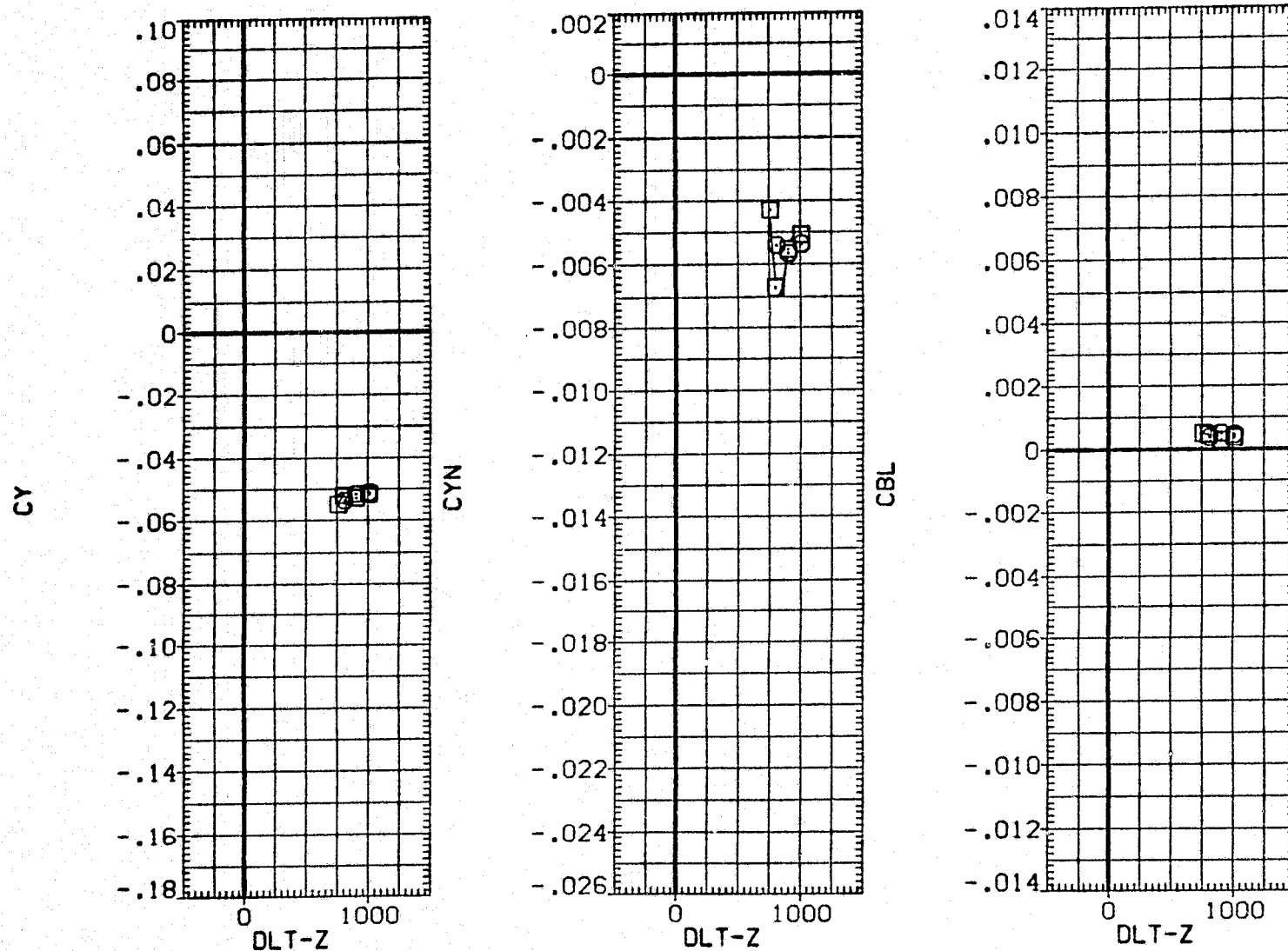


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR259)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	.410	DLT-Y	60.000	ALPHA	-10.000	
□	400.440	BETA	.000	DLTALF	.000	
		DLTBT	3.000	MACH	5.930	
		AILRON	.000	ELEVON	-20.000	
		GRID	10.000			

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

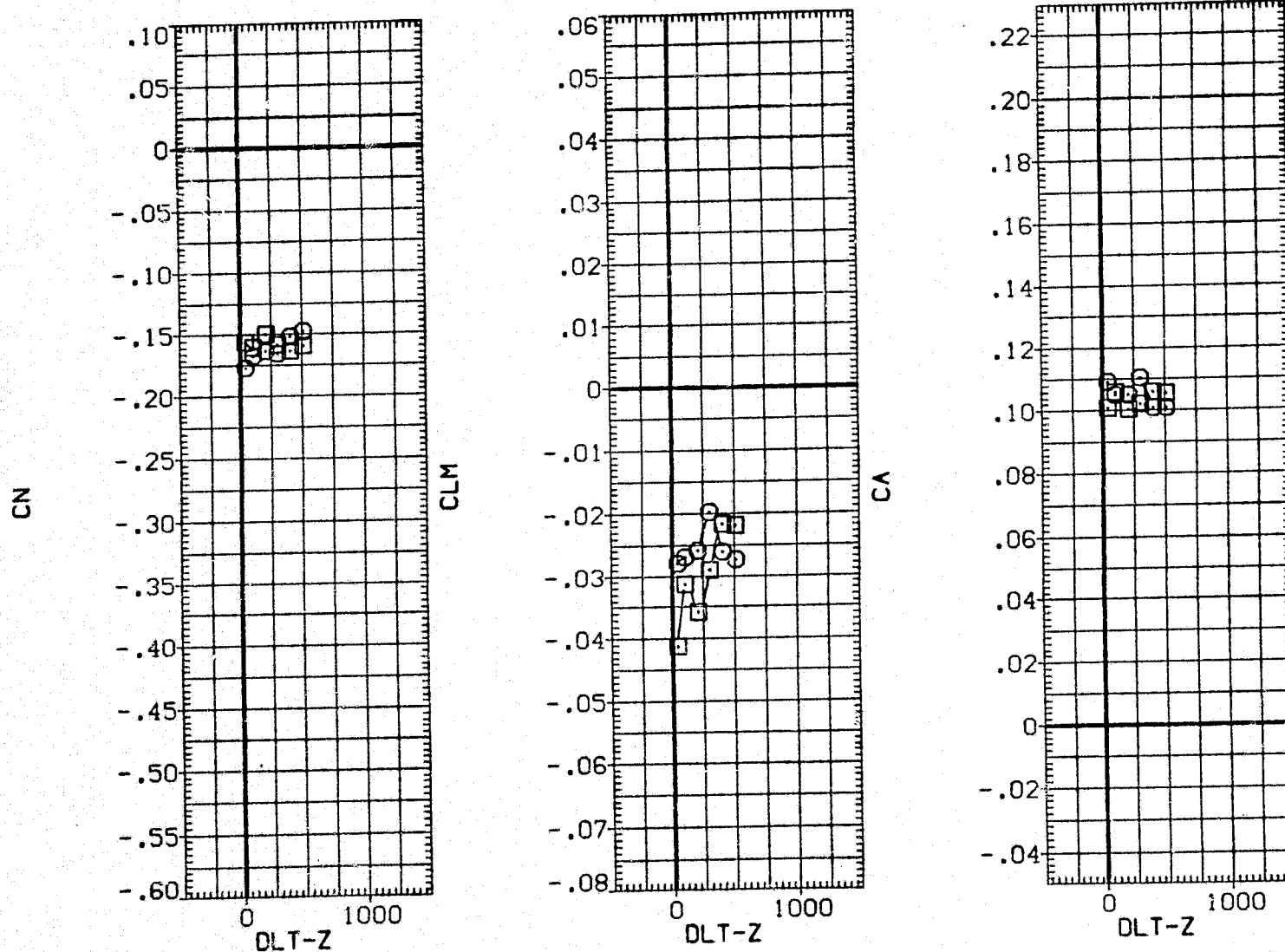


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR259)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.410	60.000	ALPHA	-10.000	
□	400.440	BETA	DLTALF	.000	
		3.000	MACH	5.930	
		.000	ELEVON	-20.000	
		10.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

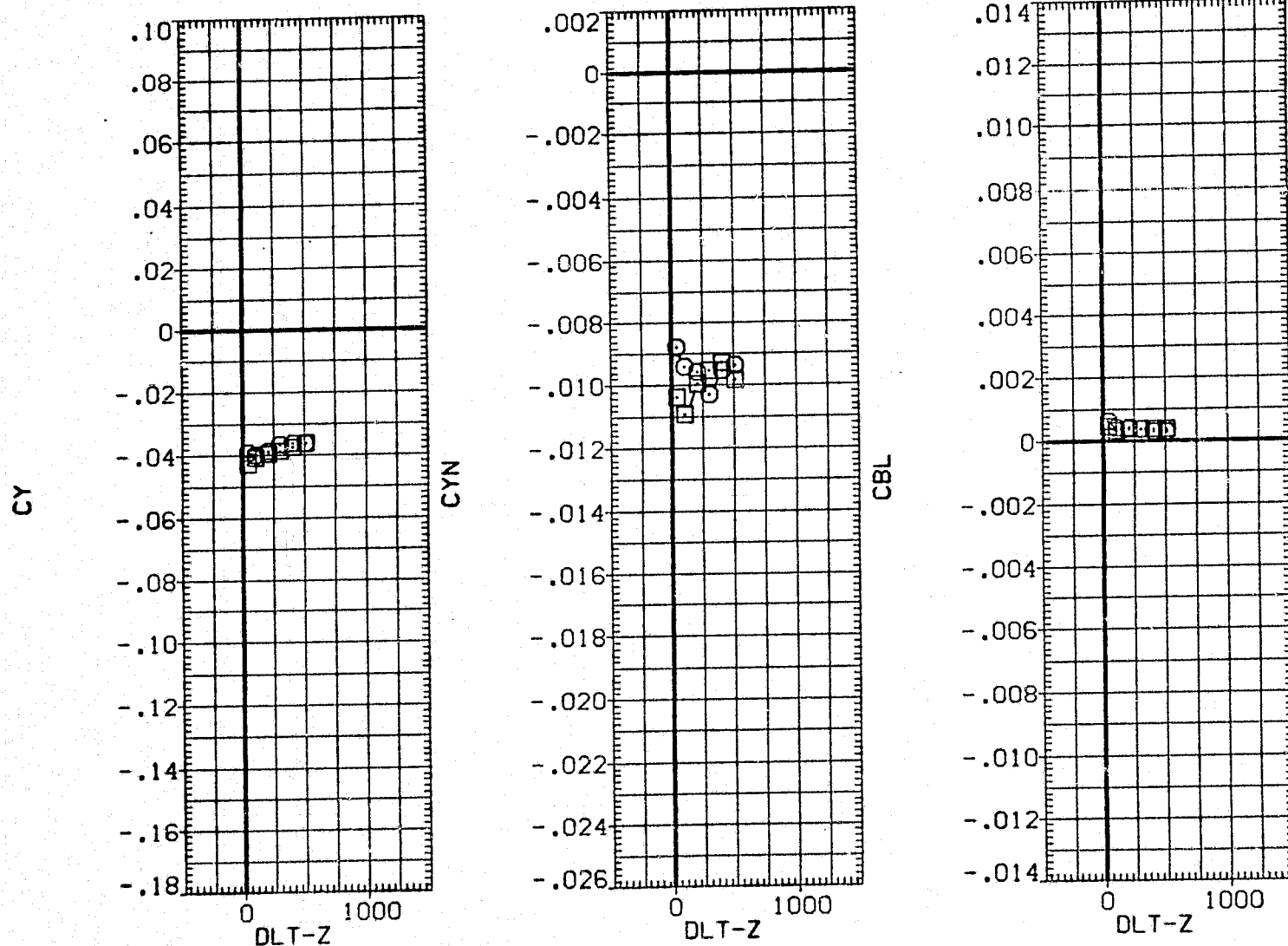


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR260)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.432	60.000	BETA	.000	-10.000
□	400.410	3.000	DLTALF	-10.000	
		.000	MACH	5.930	
		.000	ELEVON	-20.000	
		10.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

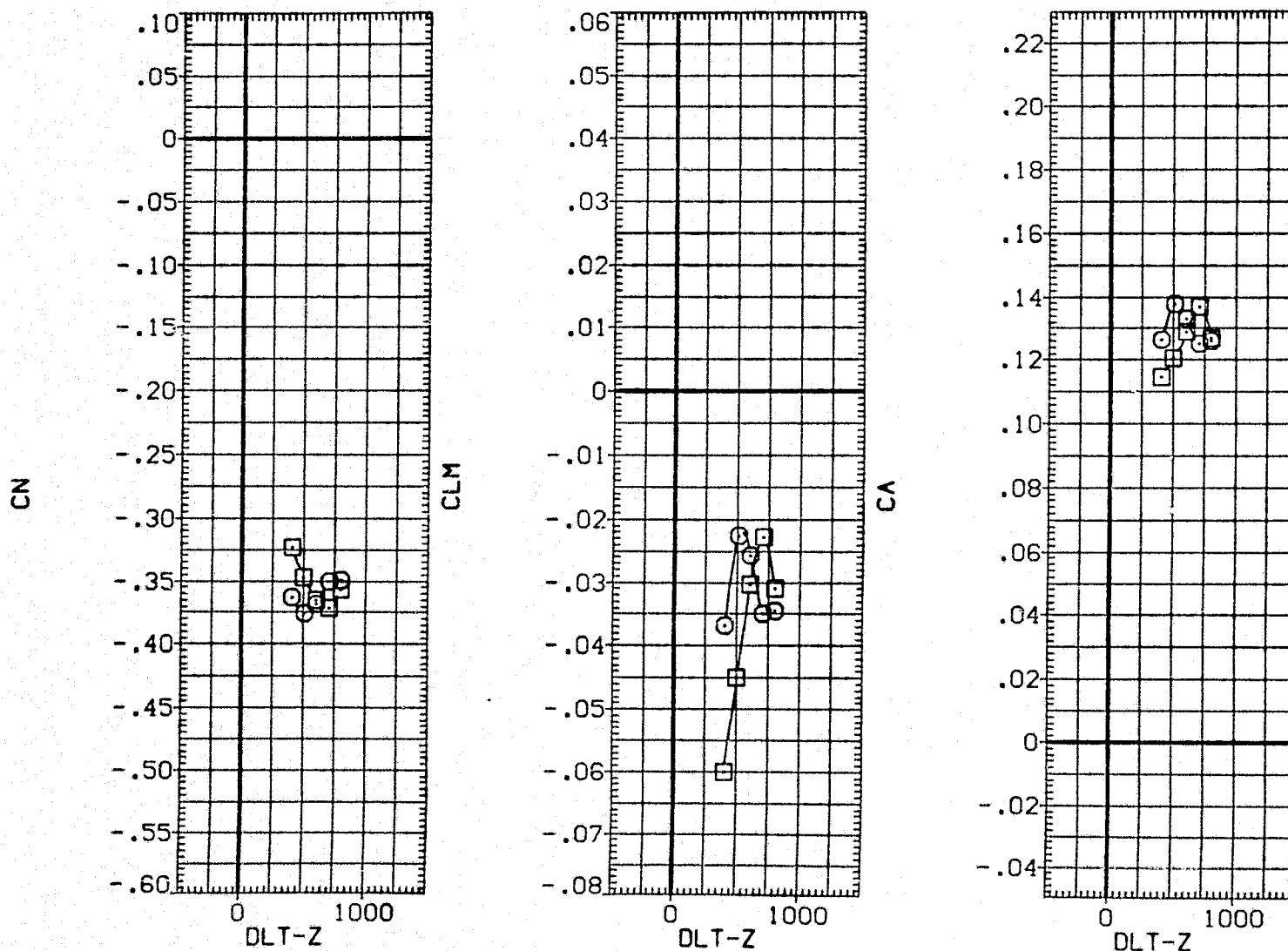


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR260)

SYMBOL
□ ○

DLT-X
.432
400.410

DLT-Y
60.000
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES
60.000
.000
3.000
.000
10.000

ALPHA
DLTALF
MACH
ELEVON

-10.000
-10.000
5.930
-20.000

REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

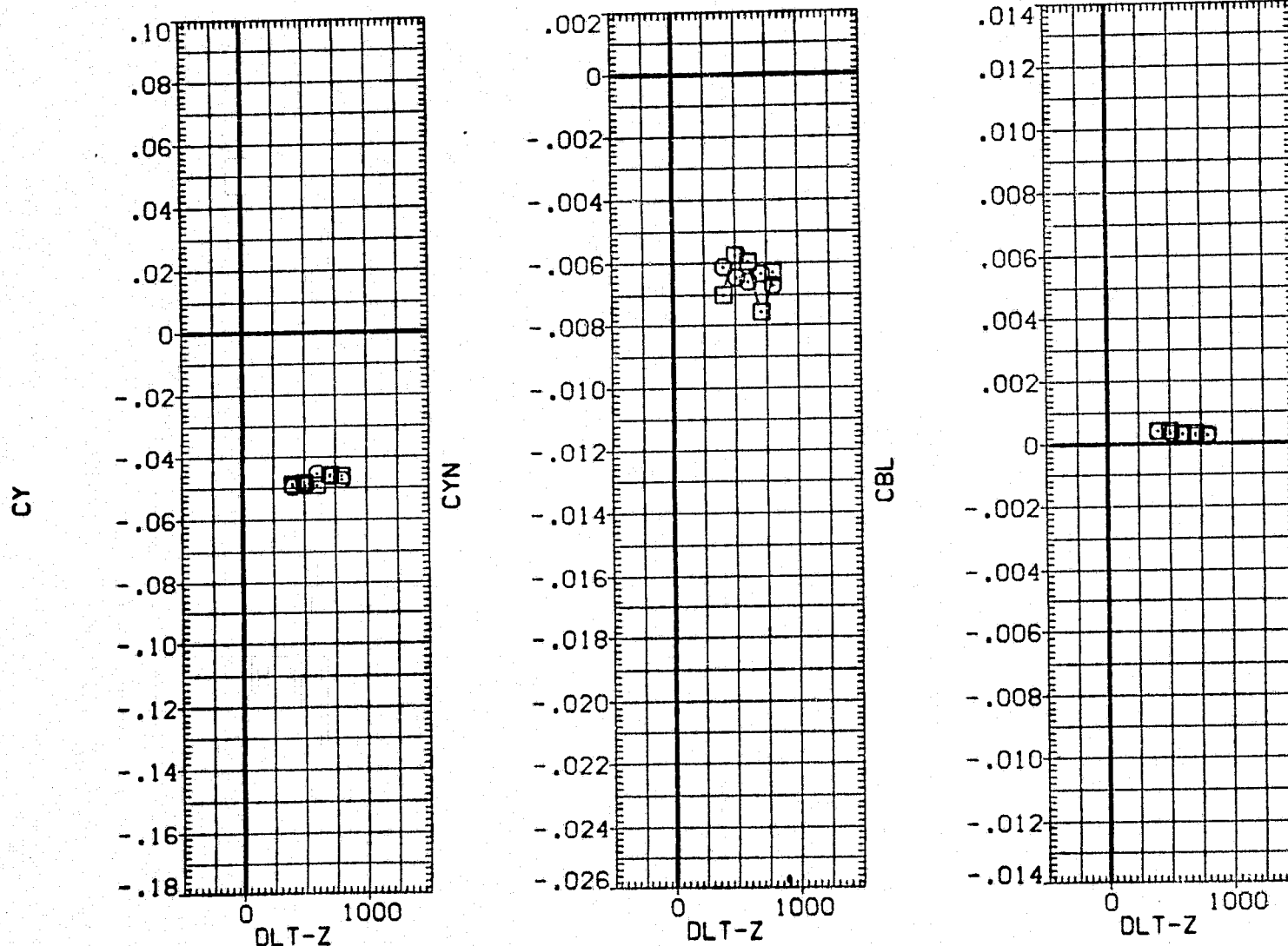


FIGURE 34 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-20)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR279)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	60.000	ALPHA	.000	
○	.468	BETA	.000	DLTALF	.000	
□	400.470	DLTBTA	3.000	MACH	5.930	
		AILRON	.000	ELEVON	-40.000	
		GRID	13.000			

REFERENCE INFORMATION

SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

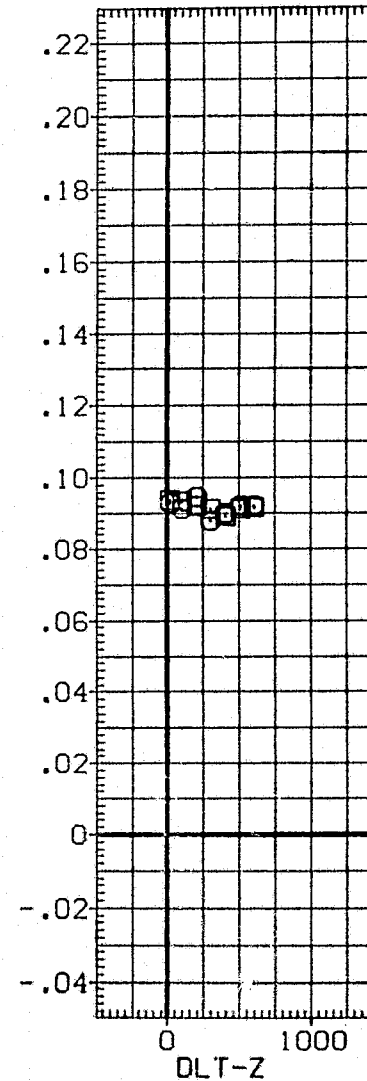
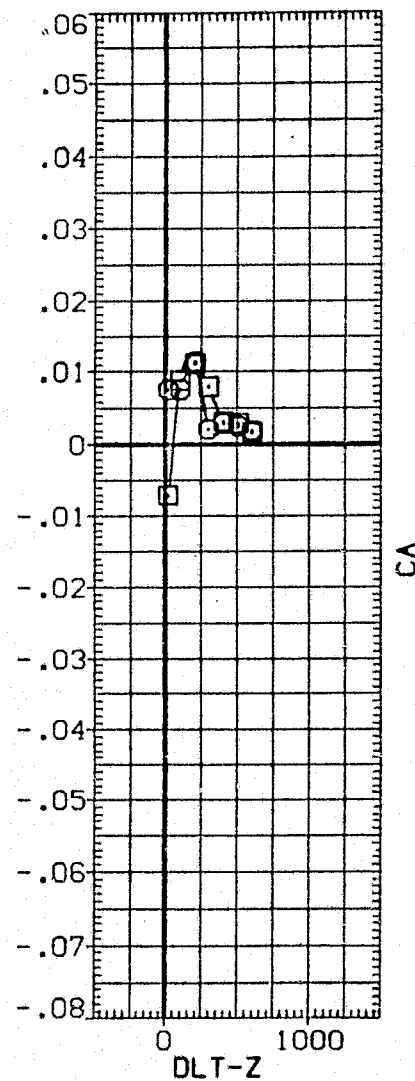
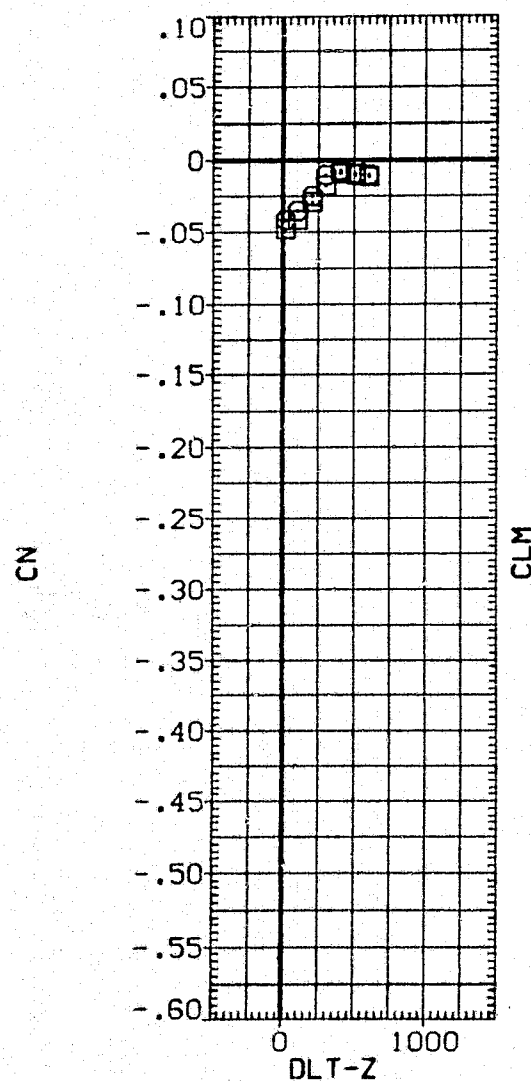


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR279)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	.468	DLT-Y	60.000	ALPHA	.000	
□	400.470	BETA	.000	DLTALF	.000	
		DLTBTA	3.000	MACH	5.930	
		AILRON	.000	ELEVON	-40.000	
		GRID	13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

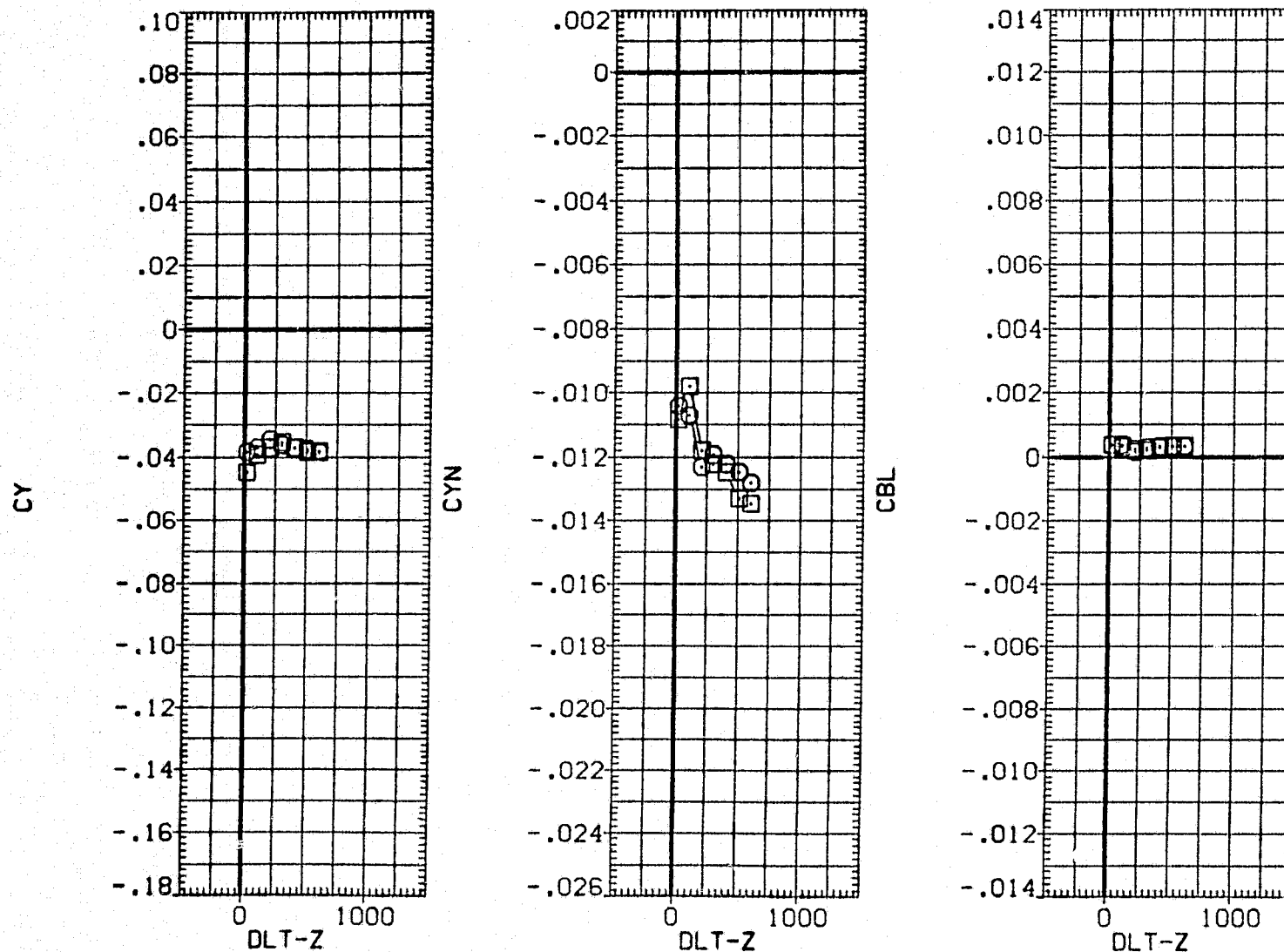


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR280)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.439	BETA	60.000	.000	
□	400.350	DLTBT	.000	-10.000	
		DLTBT	3.000	5.930	
		AILRON	.000	-40.000	
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

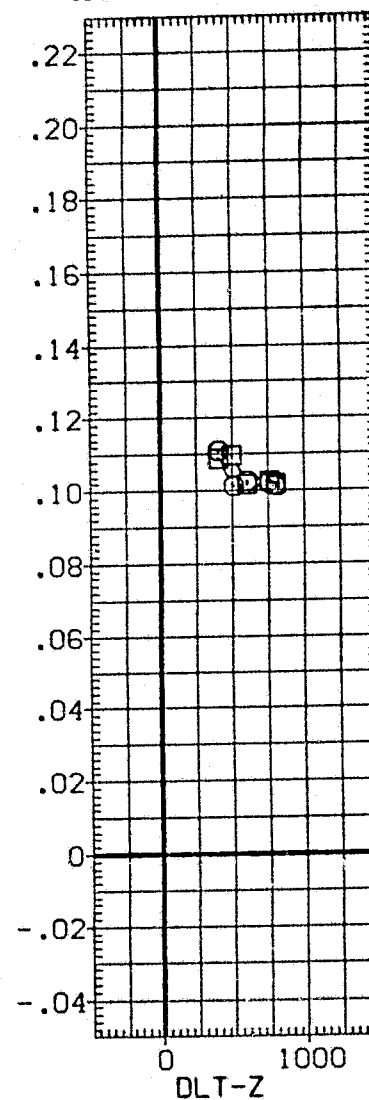
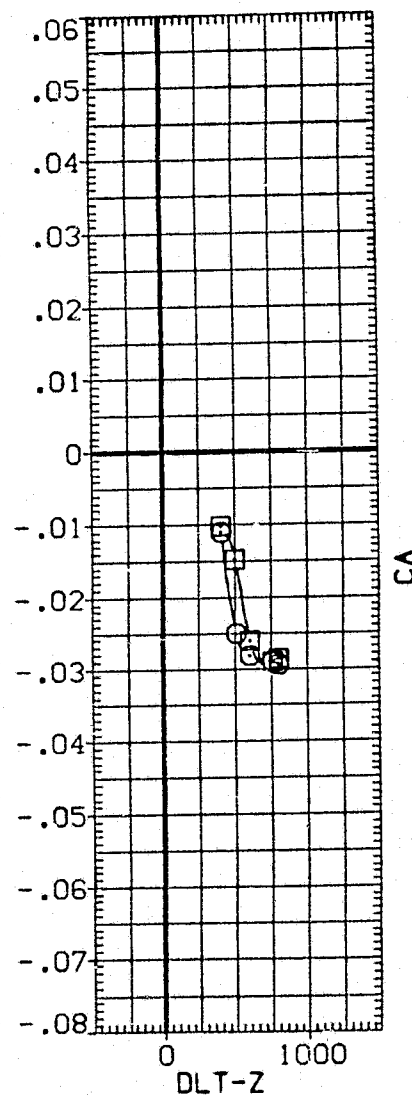
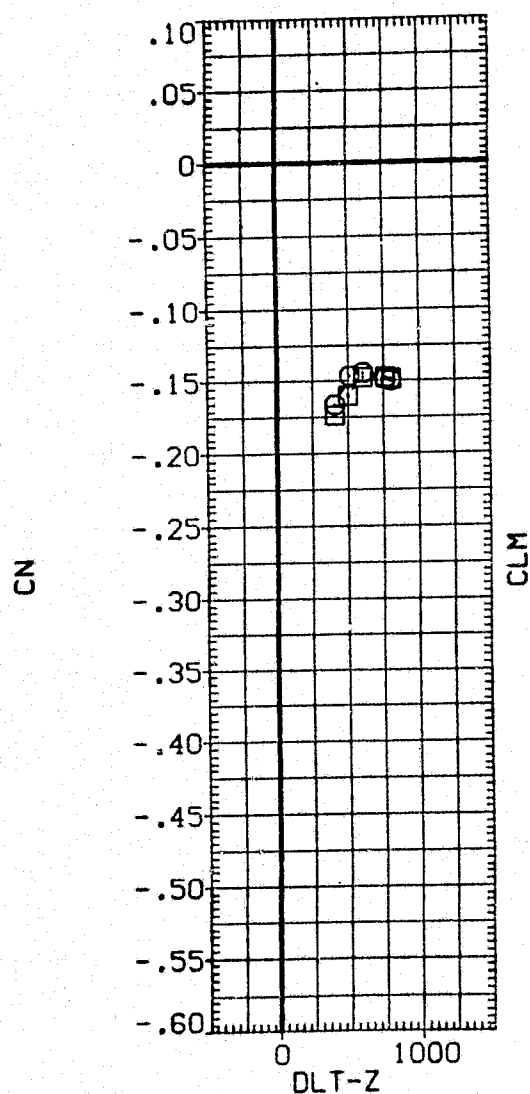


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR280)

SYMBOL	DLT-X		PARAMETRIC VALUES		
	DLT-Y	BETA	DLT8TA	AILRON	GRID
○	.439	60.000	.000	3.000	13.000
□	400.350	.000	.000	.000	
		ALPHA	DLTALF	MACH	ELEVON
				5.930	-40.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

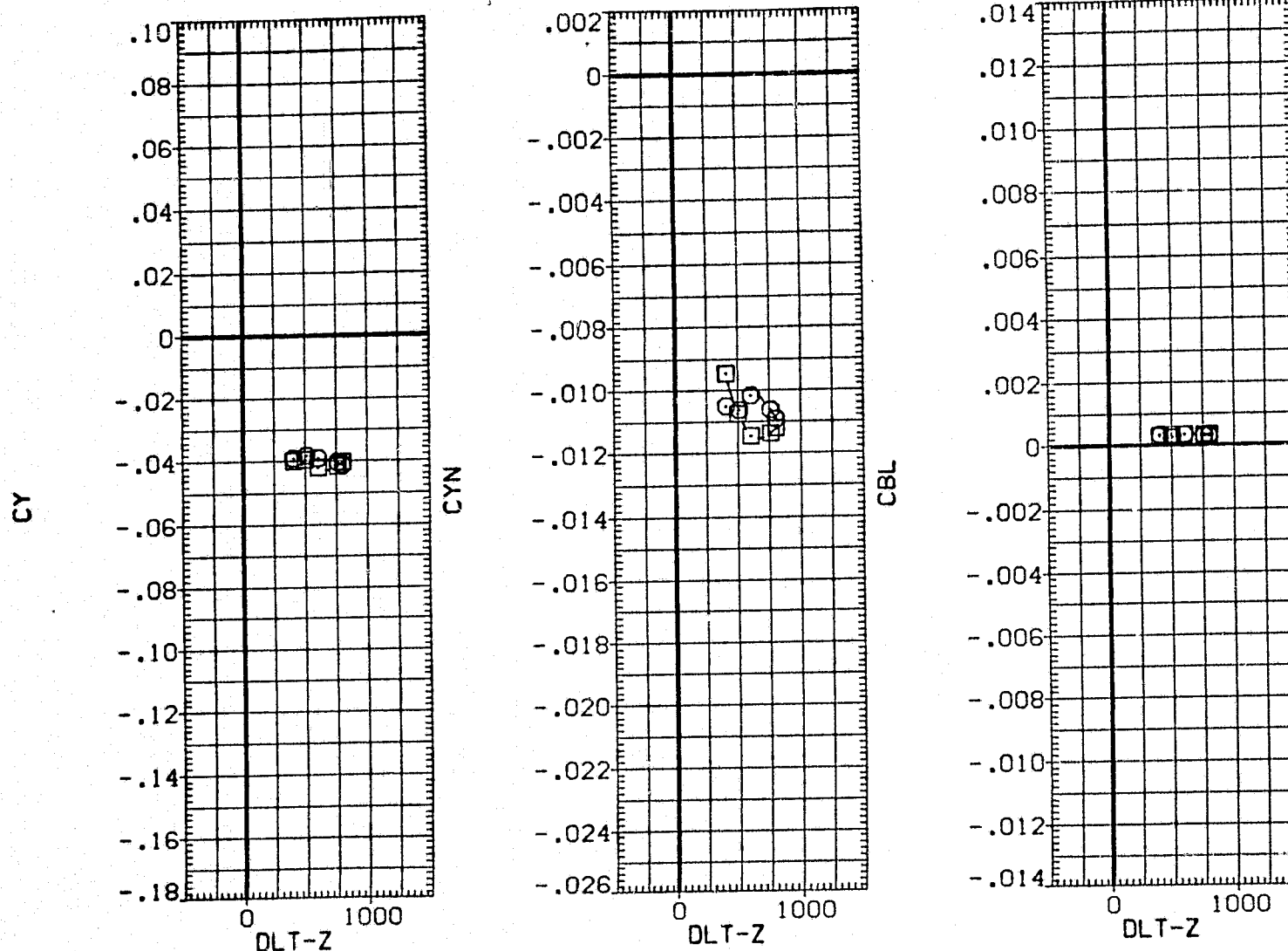


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR282)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.473	60.000	BETA	.000
□	400.400	.000	DLTALF	-20.000
		3.000	MACH	5.930
		.000	ELEVON	-40.000
		13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

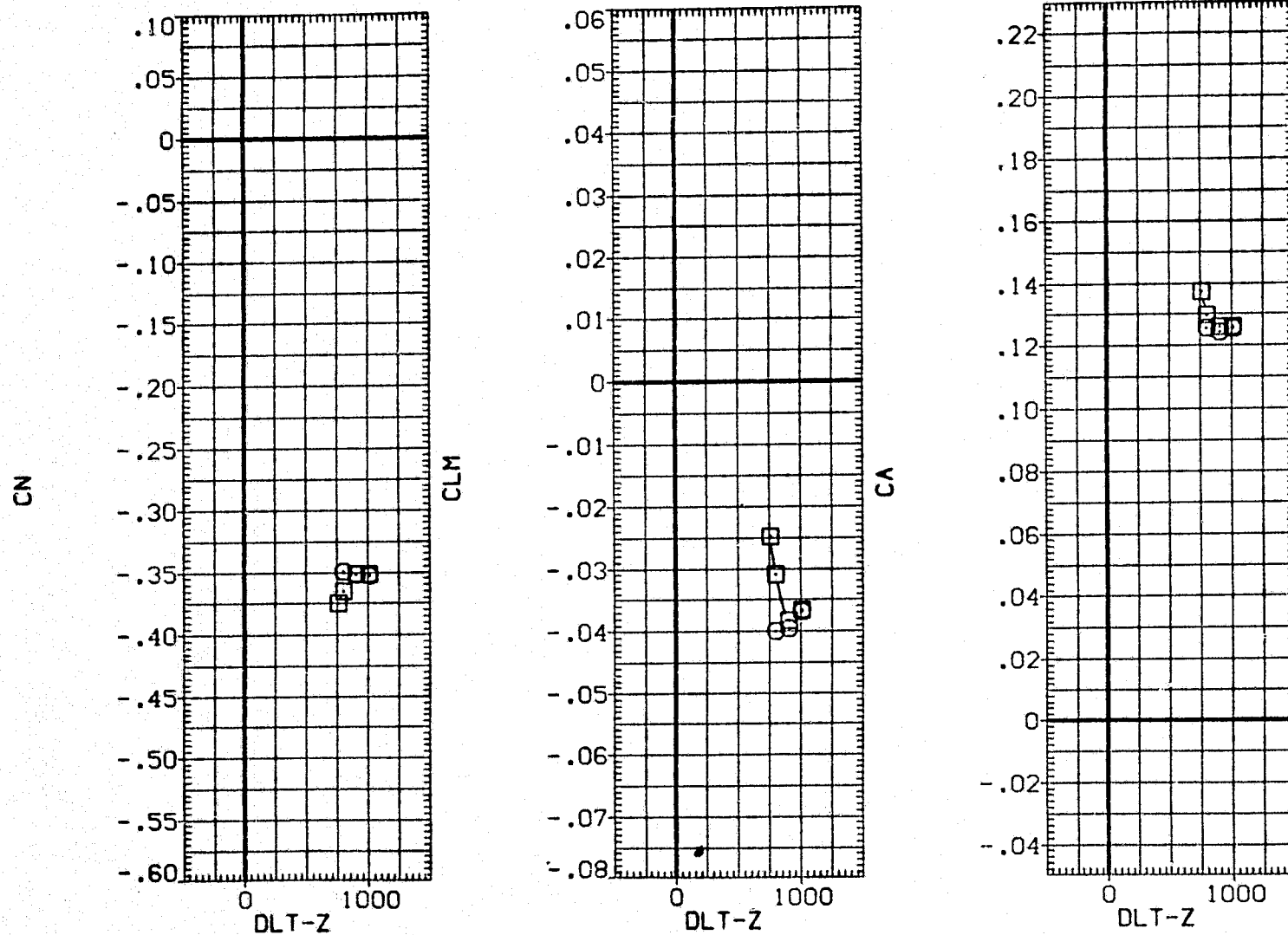


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR282)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	ELEVON
○	.473	60.000	.000	-20.000	.000
□	400.400	BETA	.000	MACH	5.930
		DLTBTA	3.000	ELEVON	-40.000
		AILRON	.000		
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

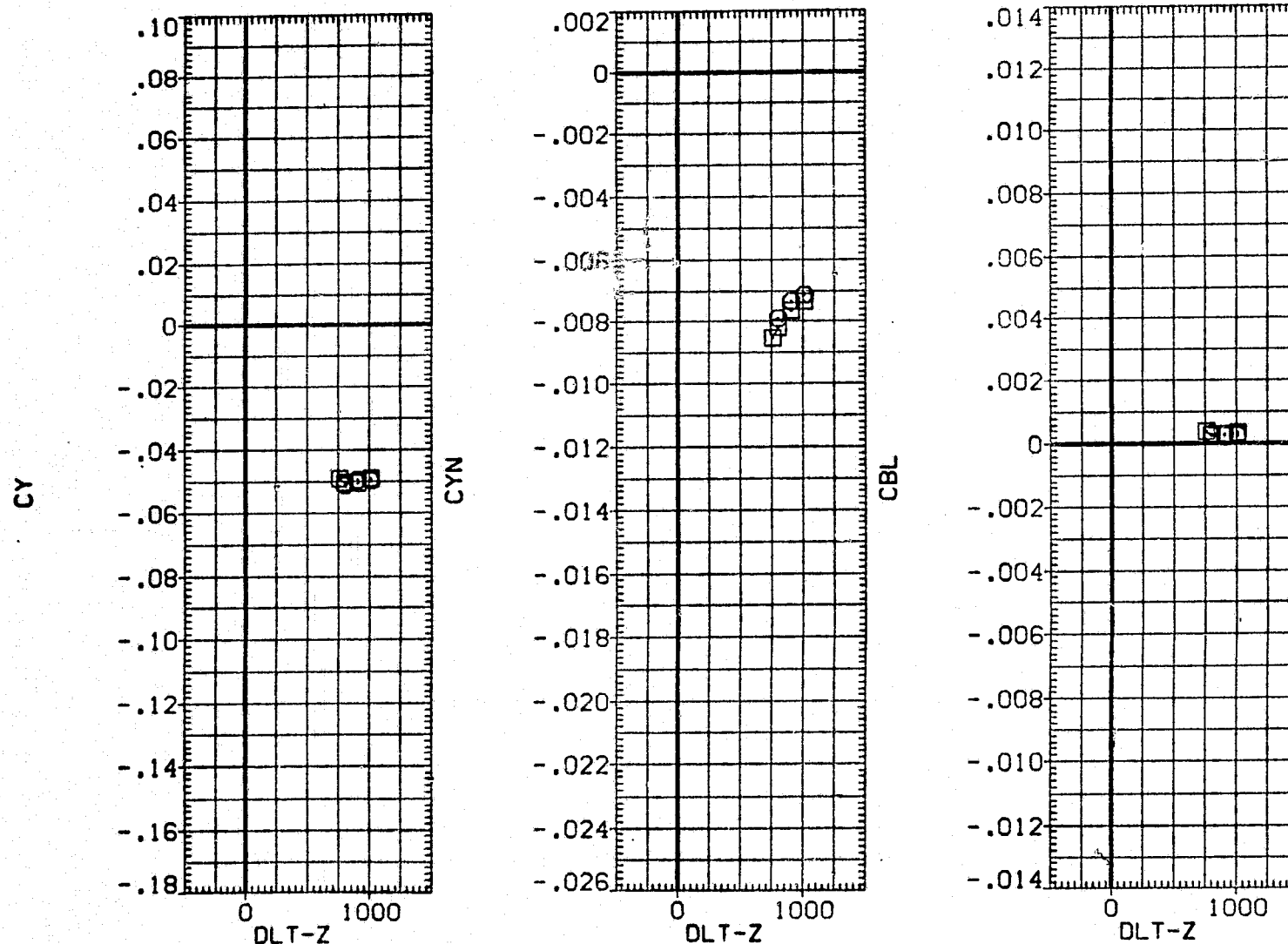


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR277)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
O	.411	BETA	60.000	.000
		DLTBT	3.000	DLTALF
		AILRON	3.000	MACH
		GRID	.000	ELEVON
			14.000	-40.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

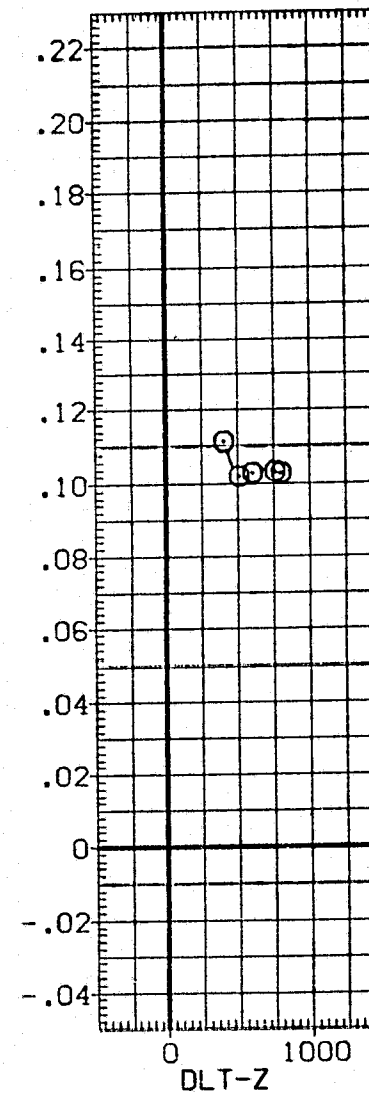
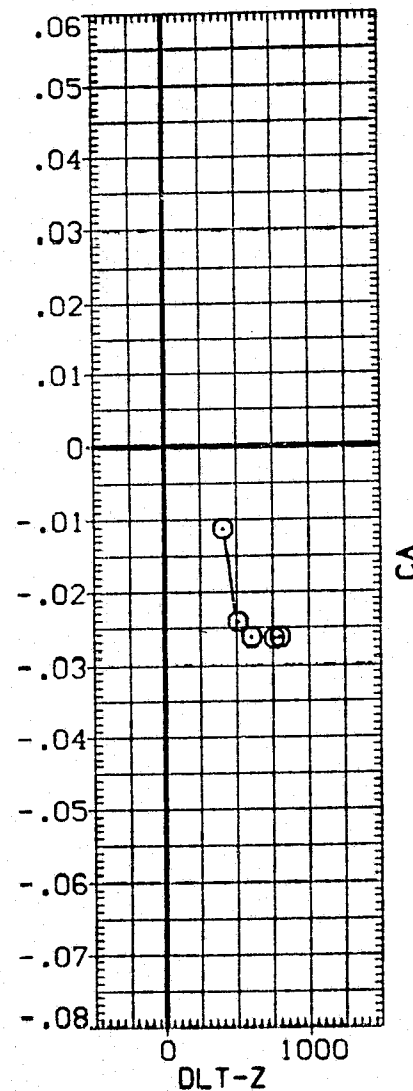
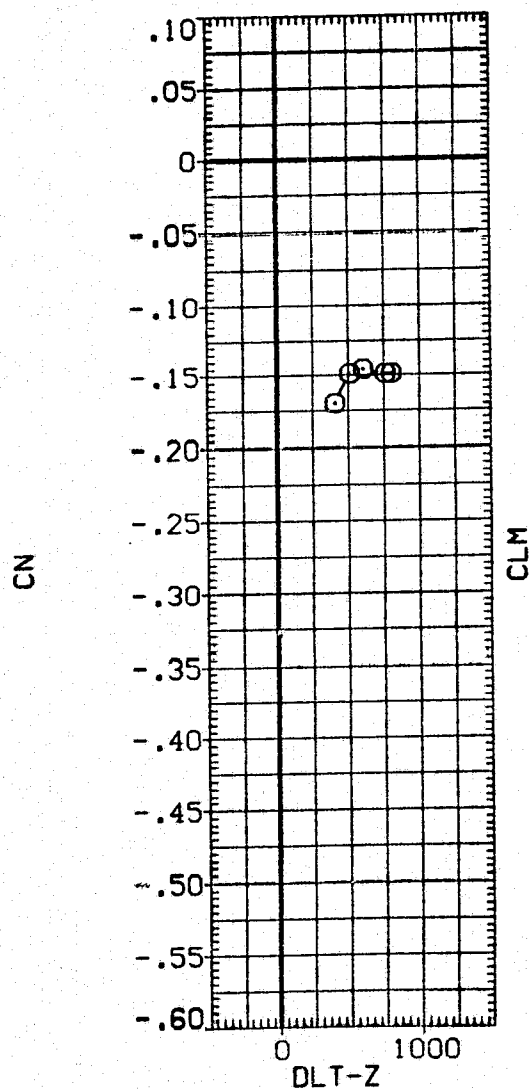


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR277)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
O	.411	60.000	BETA	3.000	.000
		3.000	DLTALF	-10.000	
		3.000	MACH	5.930	
		.000	ELEVON	-40.000	
		14.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

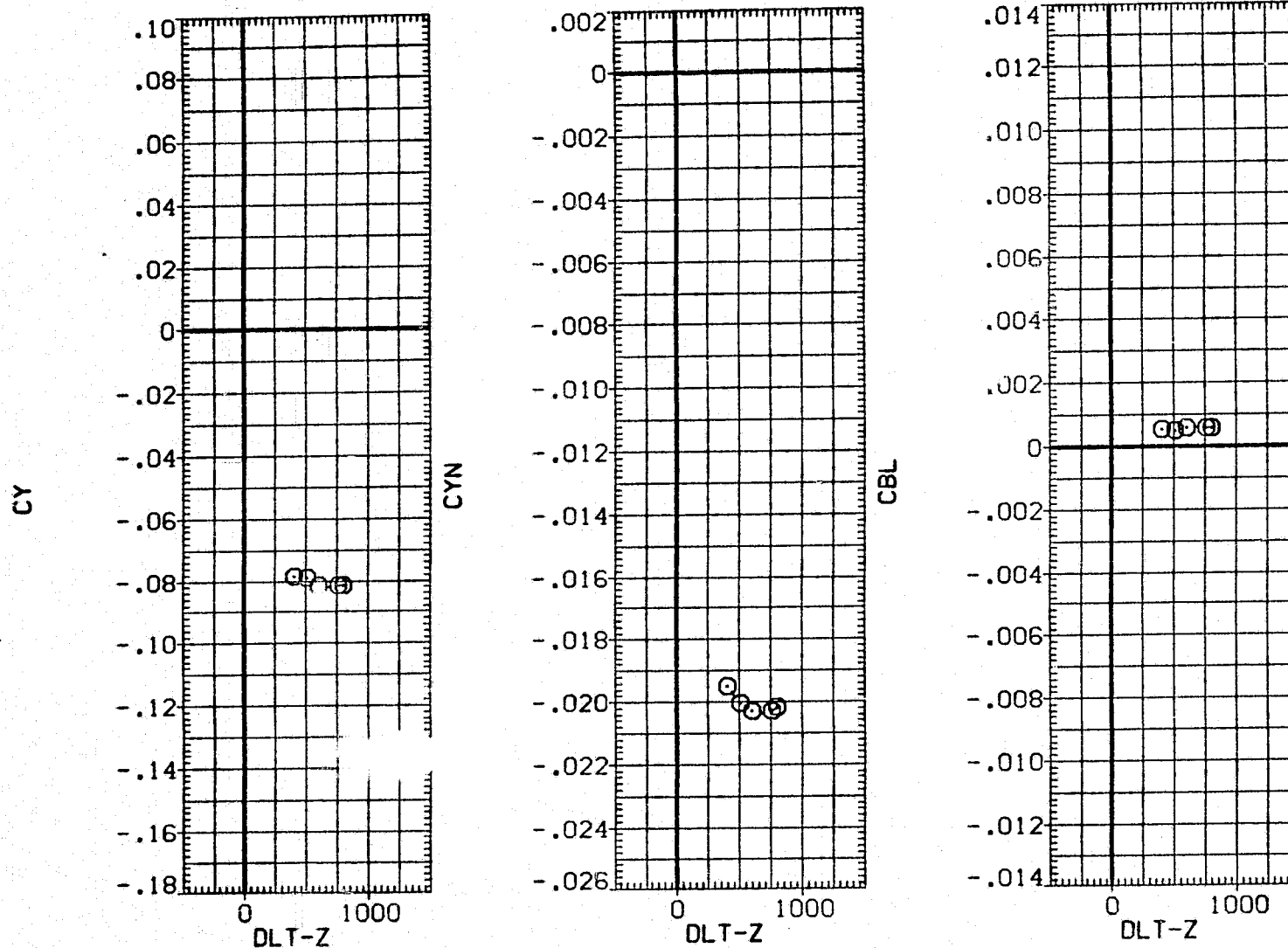


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR278)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
O	.494	BETA	60.000	.000	
		DLTBTA	3.000	-20.000	
		AILRON	.000	MACH	5.930
		GRID	14.000	ELEVON	-40.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.9000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

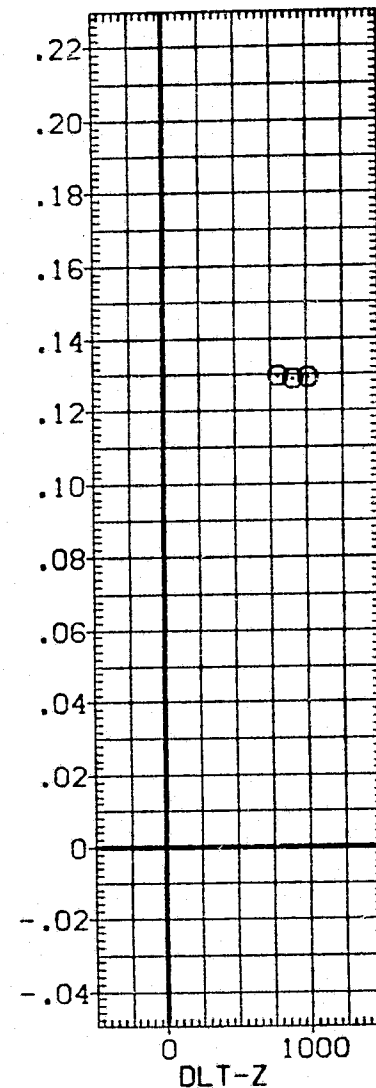
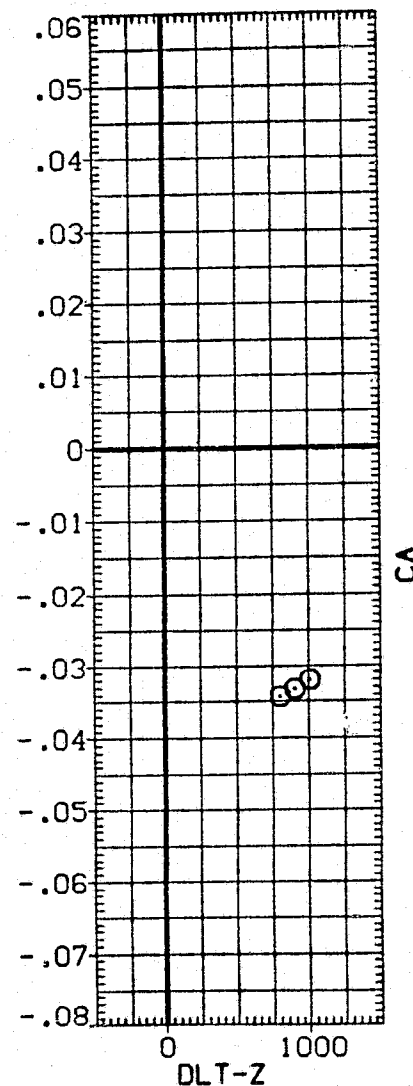
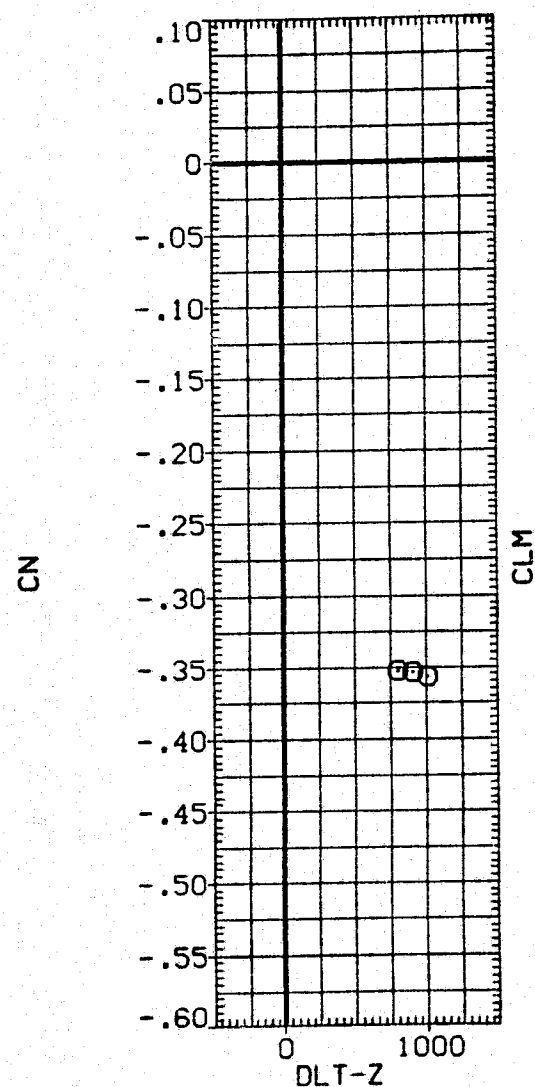


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR278)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
O	.494	BETA	60.000	.000	
		DLTBTA	3.000	DLTALF	-20.000
		AILRON	.000	MACH	5.930
		GRID	14.000	ELEVON	-40.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

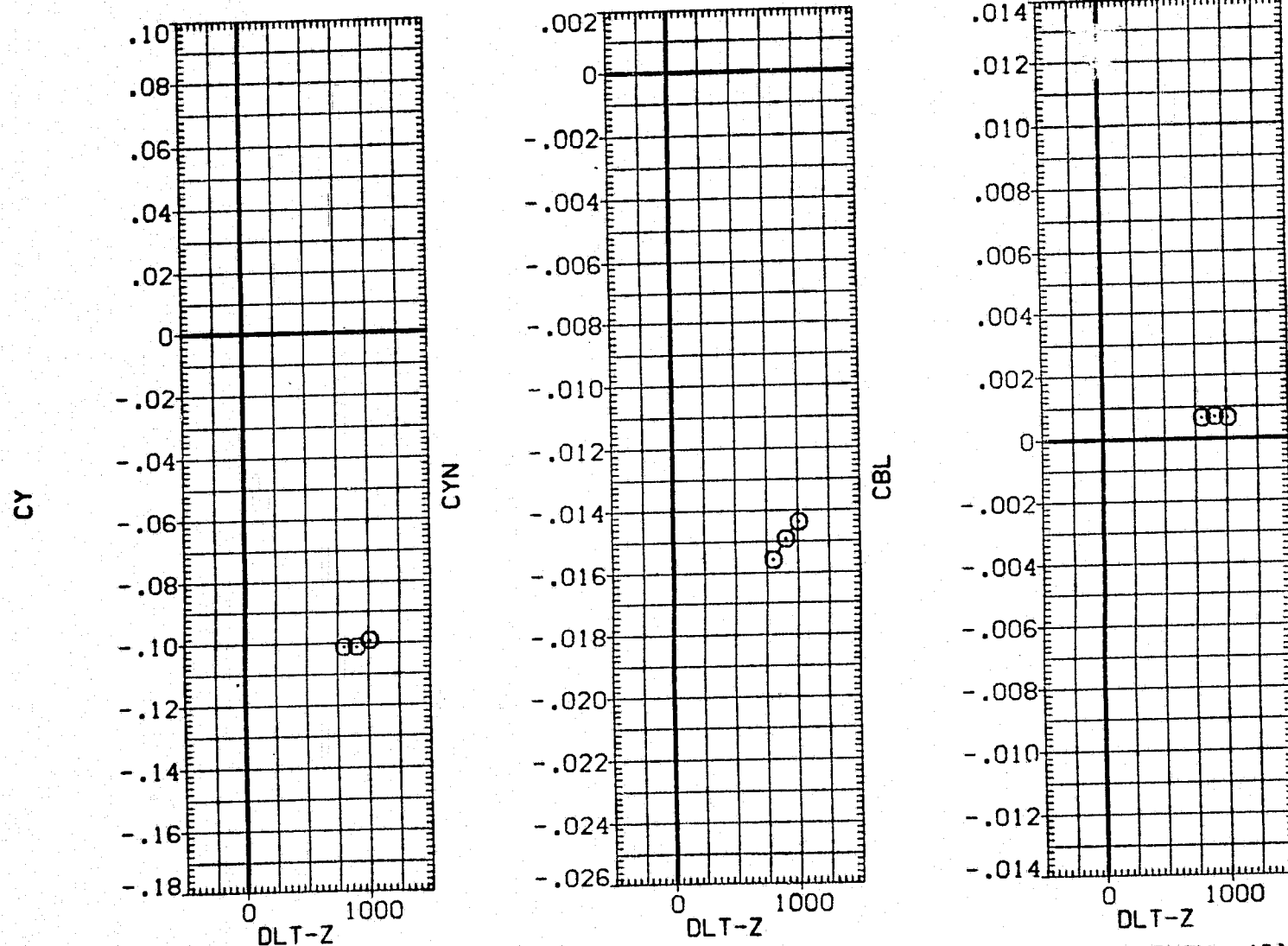


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR287)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.486	60.000	ALPHA	-5.000
□	400.510	.000	DLTALF	.000
		3.000	MACH	5.930
		.000	ELEVON	-40.000
		11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

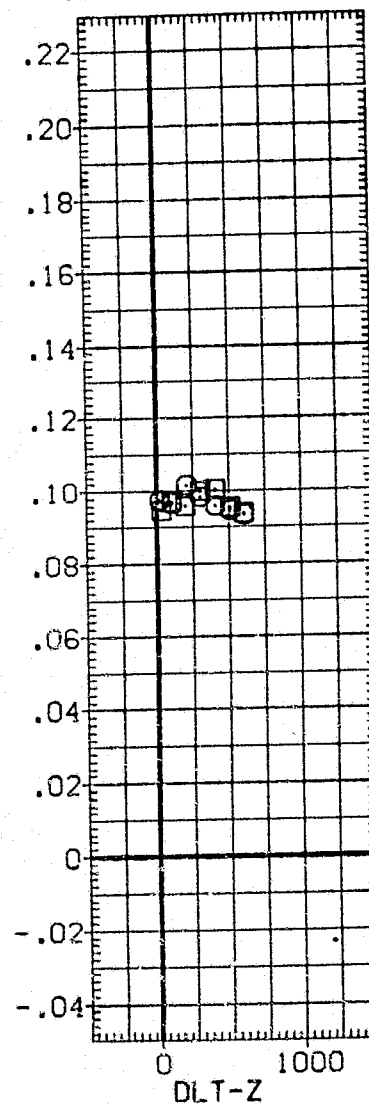
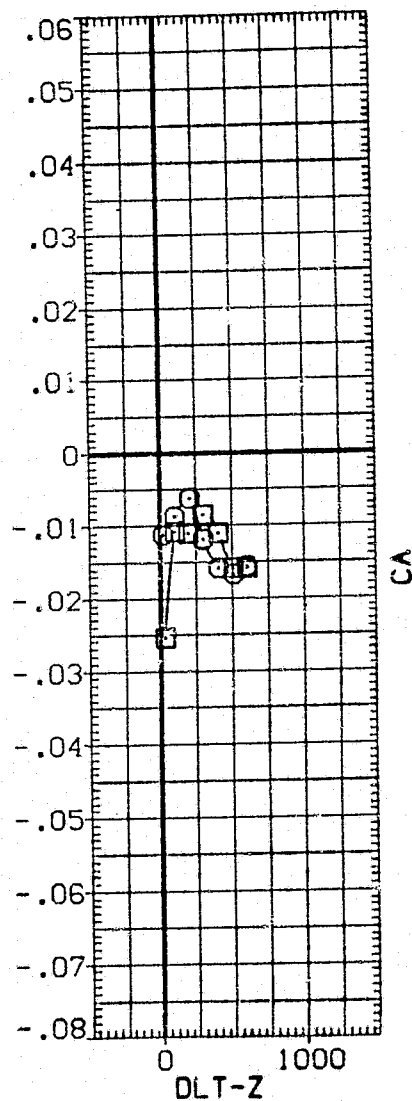
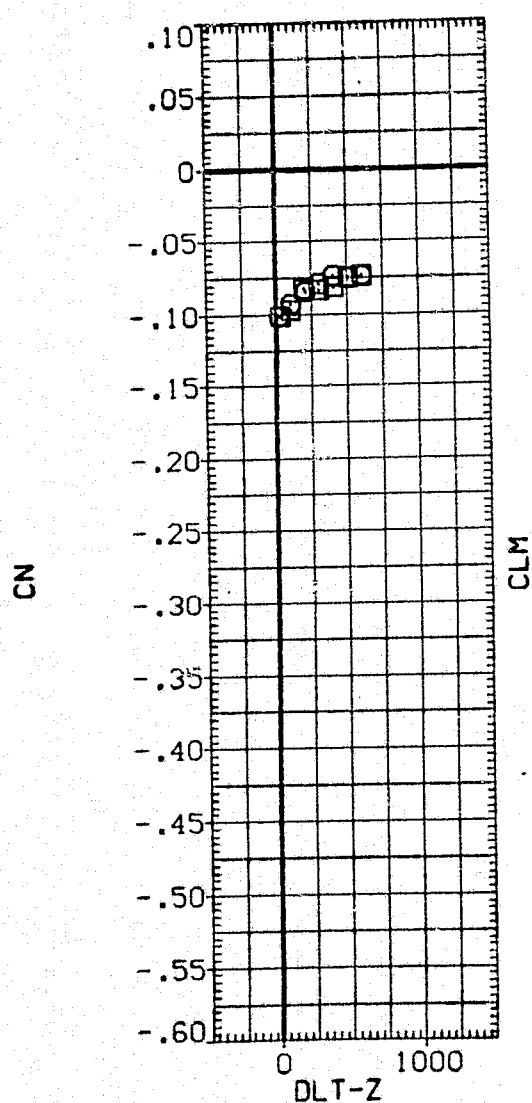


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR287)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.486	60.000	DLTALF	-5.000
□	400.510	.000	MACH	.000
		3.000	ELEVON	5.930
		.000		-40.000
		11.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

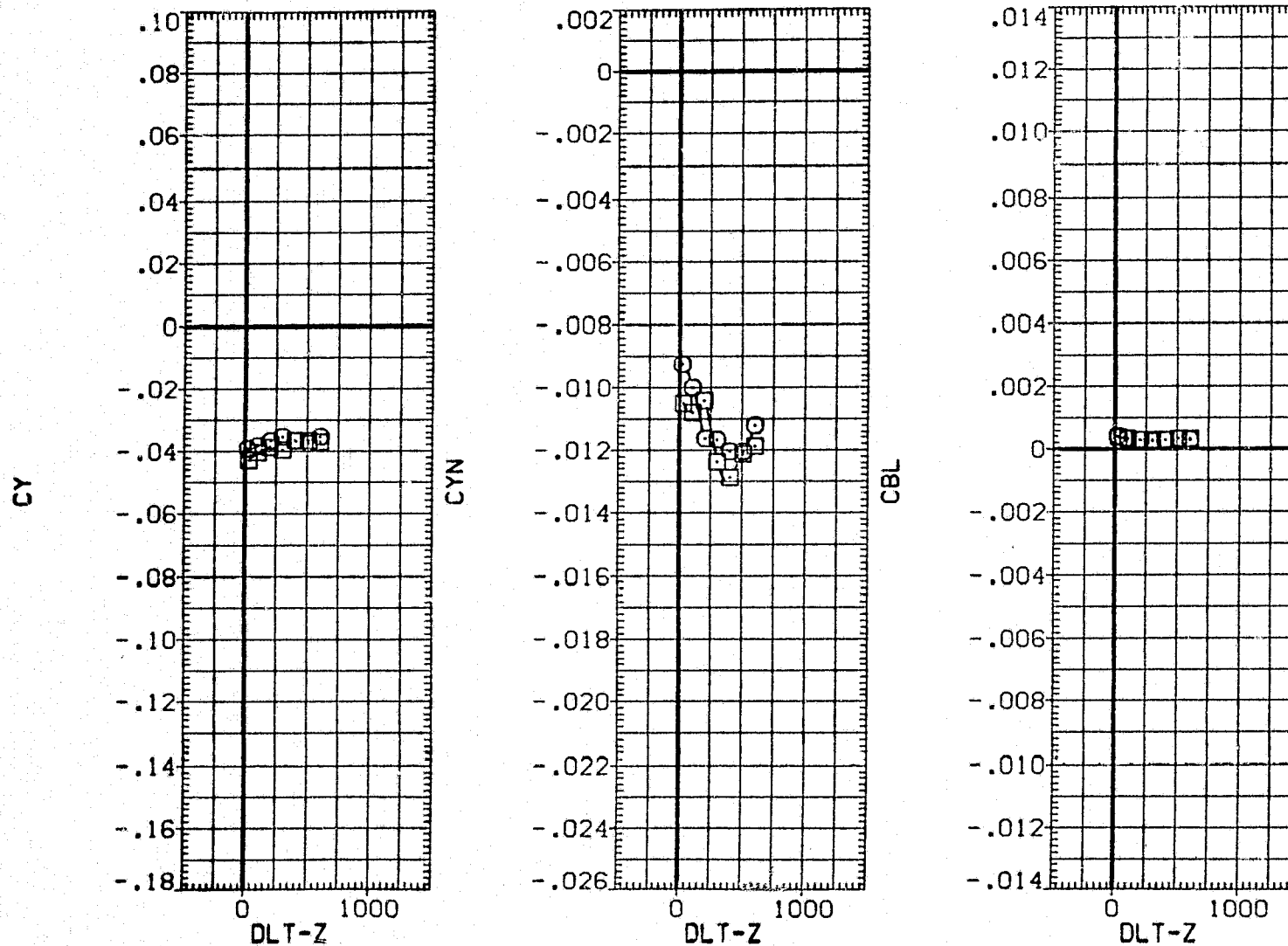


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR288)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.521	60.000	ALPHA	-5.003
□	400.520	.000	DLTALF	-10.000
		3.000	MACH	5.930
		.000	ELEVON	-40.000
		11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

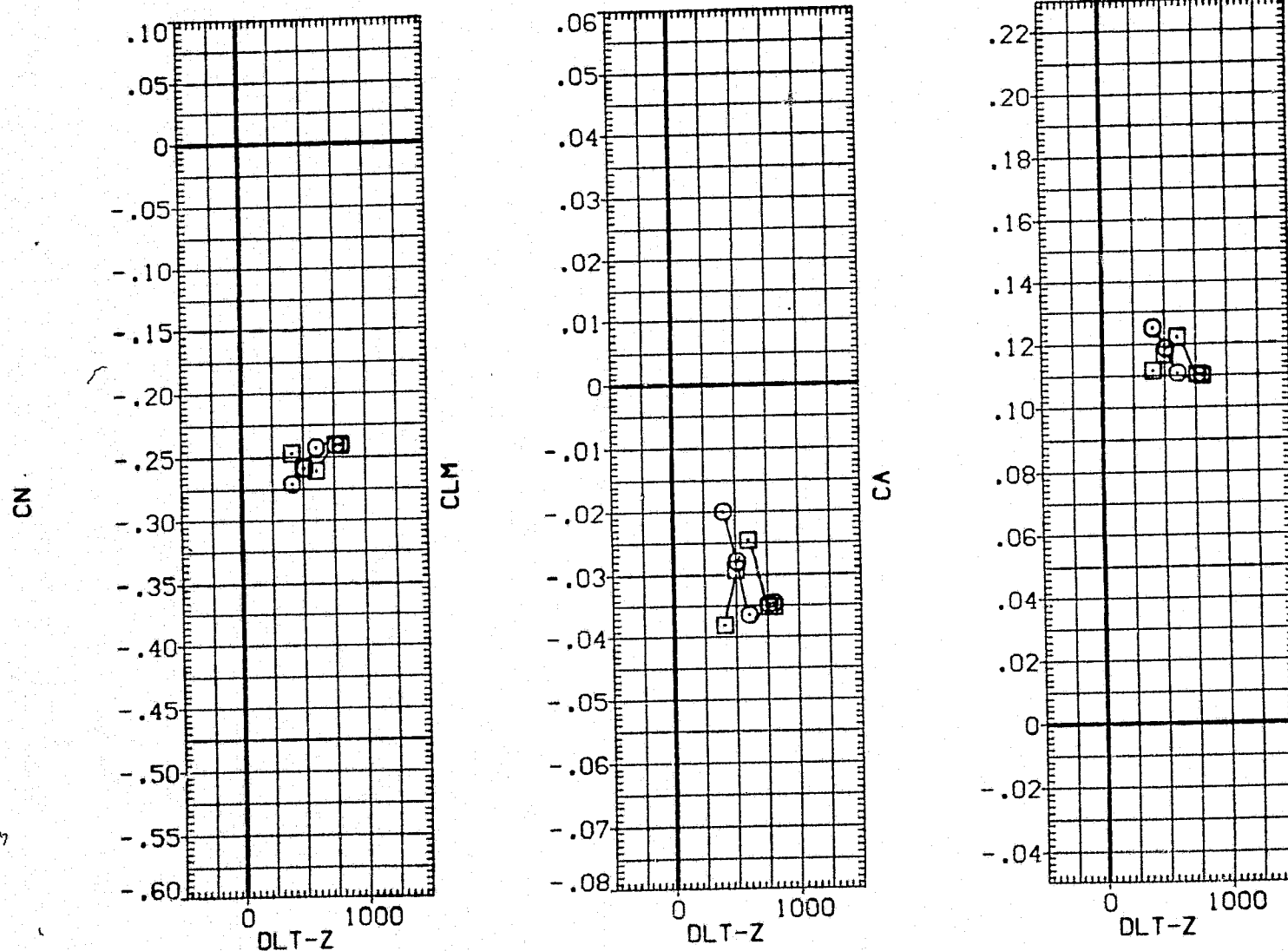


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR288)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.521	60.000	ALPHA	-5.000
□	400.520	.000	DLTALF	-10.000
		3.000	MACH	5.930
		.000	ELEVON	-40.000
		11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

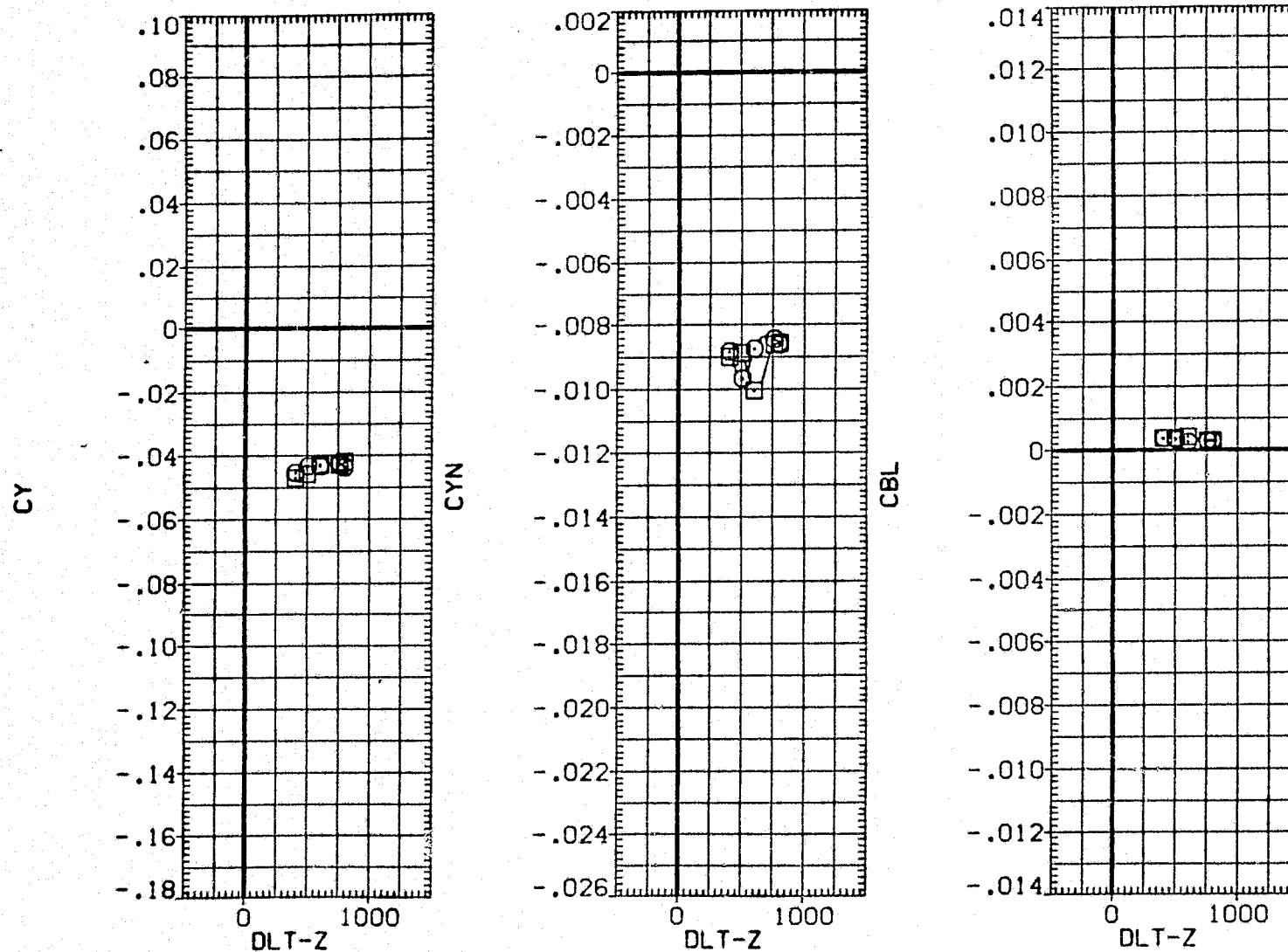


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR290)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	ELEVON
○	.410	60.000	ALPHA	-5.000	
□	400.430	.000	DLTALF	-20.000	
		3.000	MACH	5.930	
		.000	ELEVON	-40.000	
		11.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. XT
ZMRP	.0000	IN. YT
SCALE	416.4000	IN. ZT
	.0100	

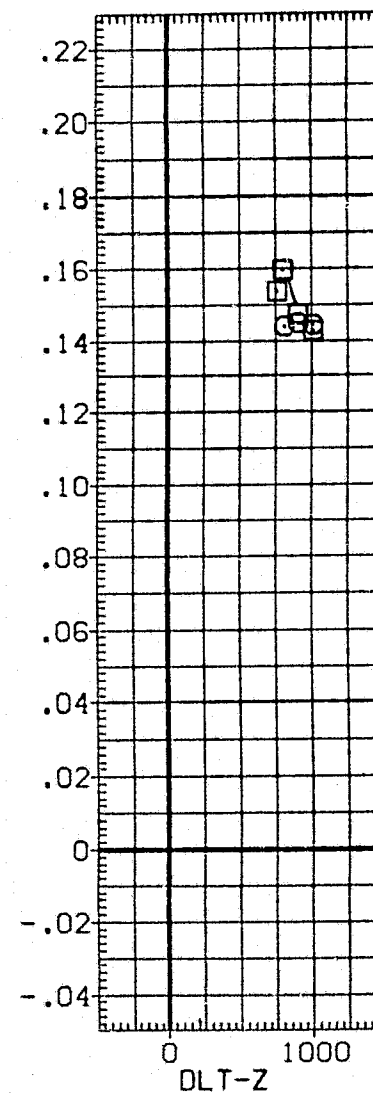
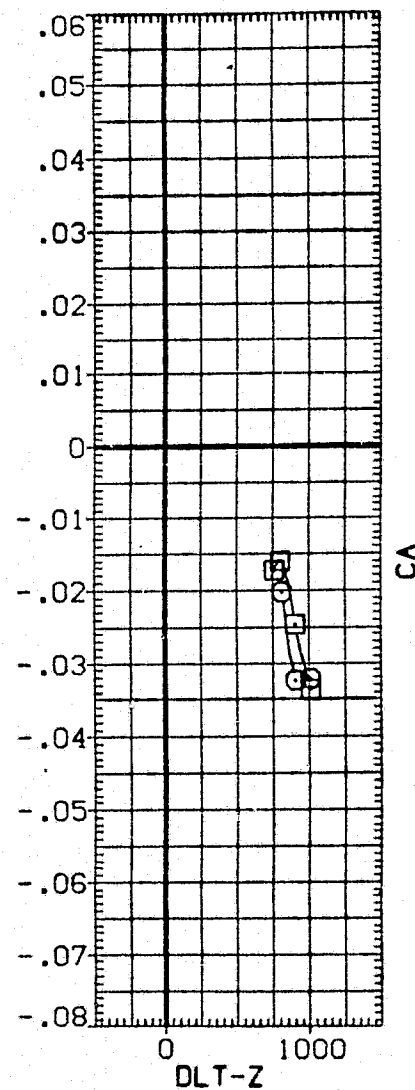
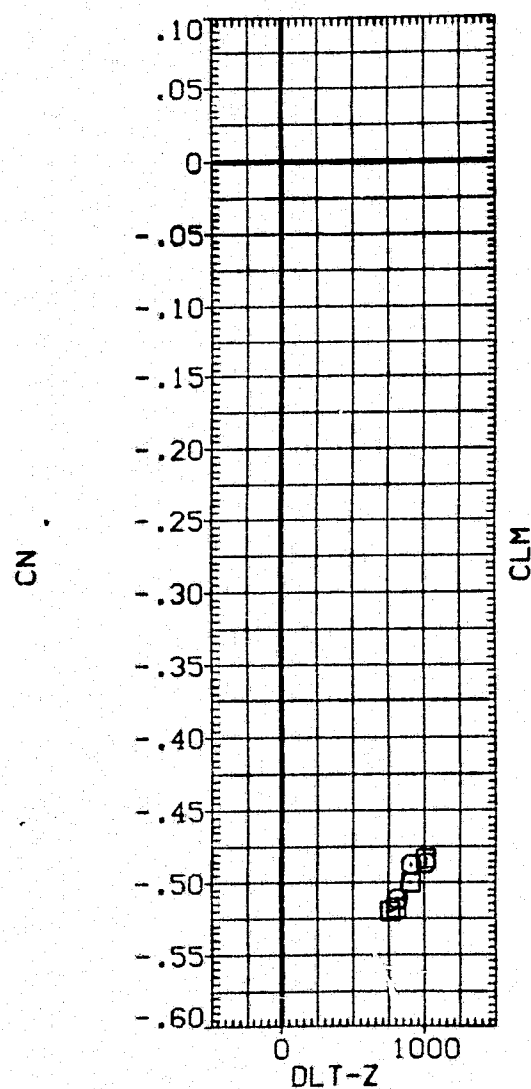


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR290)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.410	60.000	BETA	-5.000	
□	400.430	.000	DLTALF	-20.000	
		3.000	MACH	5.930	
		.000	ELEVON	-40.000	
		11.000			
		GRID			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

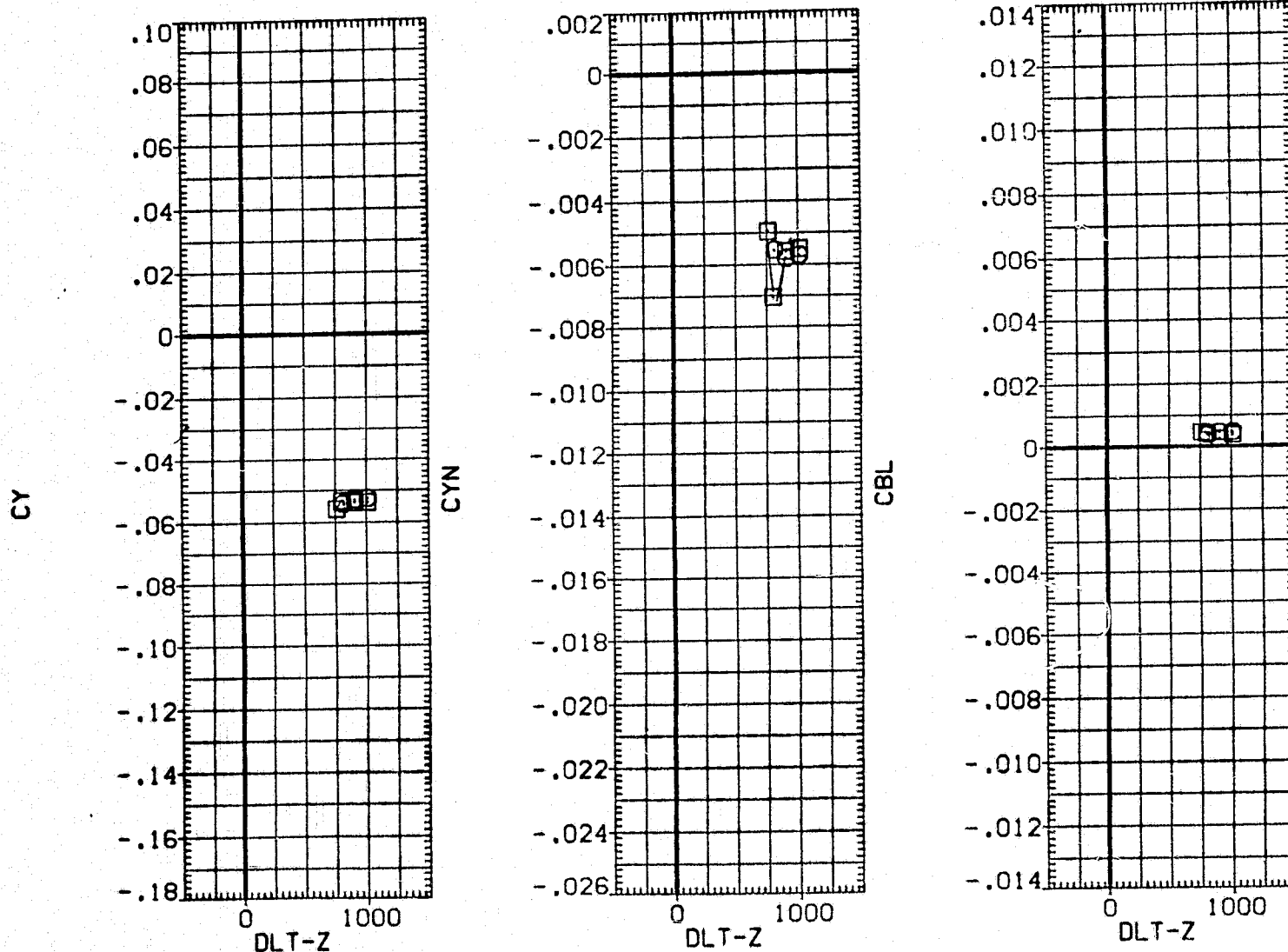


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR291)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.452		ALPHA	-10.000
□	400.440	BETA	DLTALF	.000
		DLTBTA	MACH	5.930
		AILRON	ELEVON	-40.000
		GRID		10.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

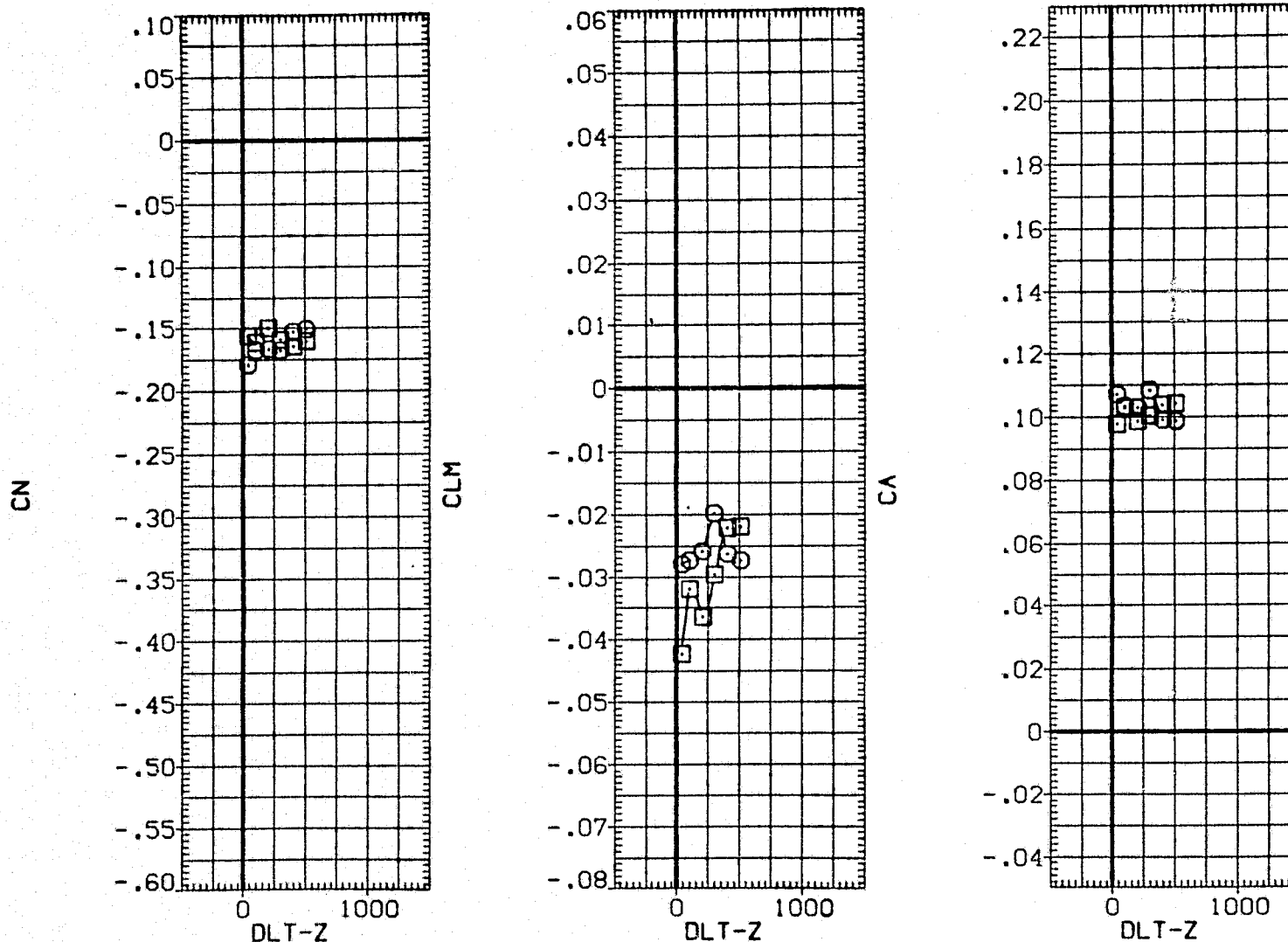


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR291)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	○ .452	DLT-Y	60.000	ALPHA	-10.000
□	400.440	BETA	.000	DLTALF	.000
		DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	-40.000
		GRID	10.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

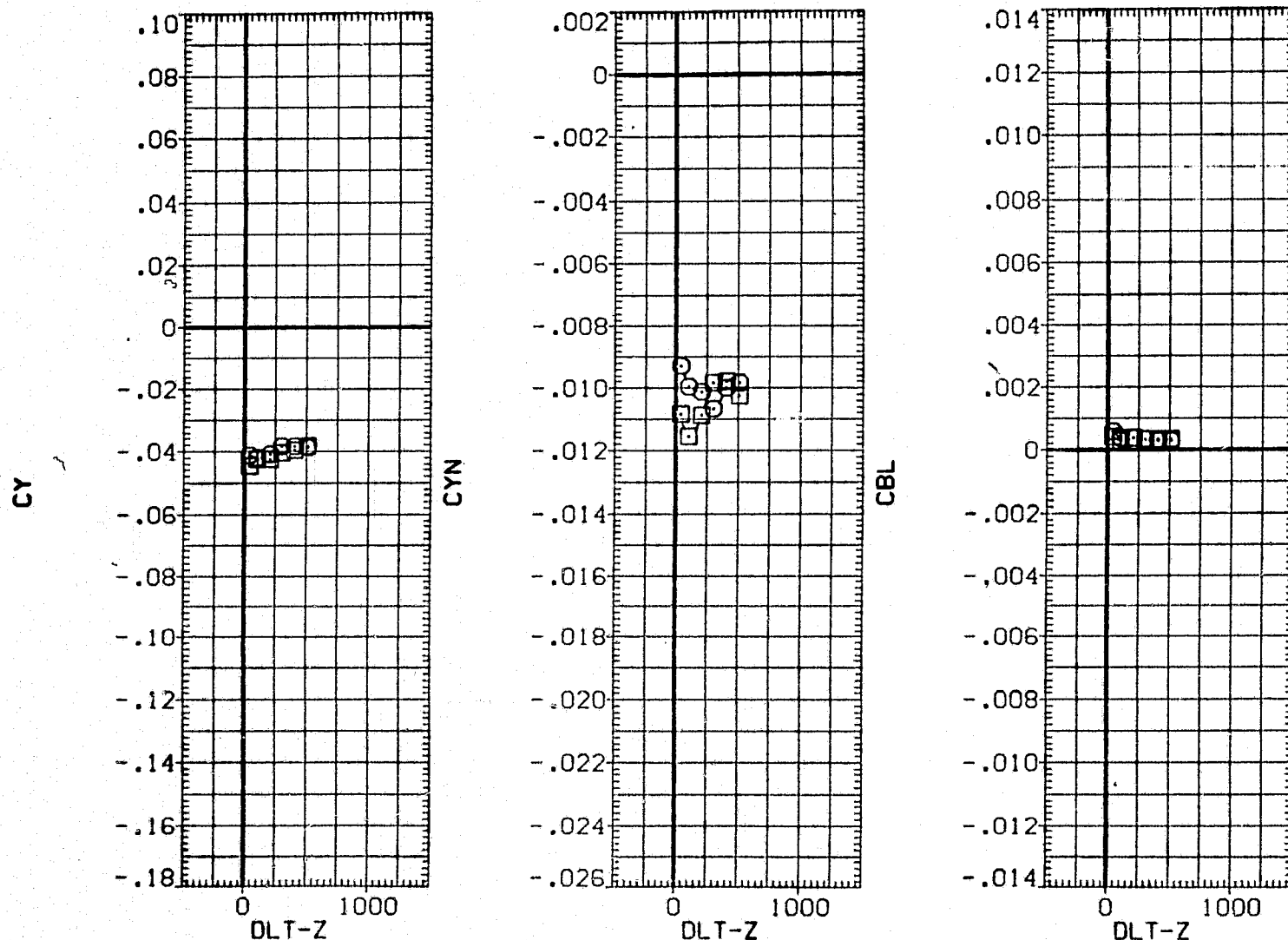


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR292)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.490	60.000	BETA	-10.000	
□	400.380	.000	DLTBT	-10.000	
		3.000	MACH	5.930	
		.000	ELEVON	-40.000	
		10.000			

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

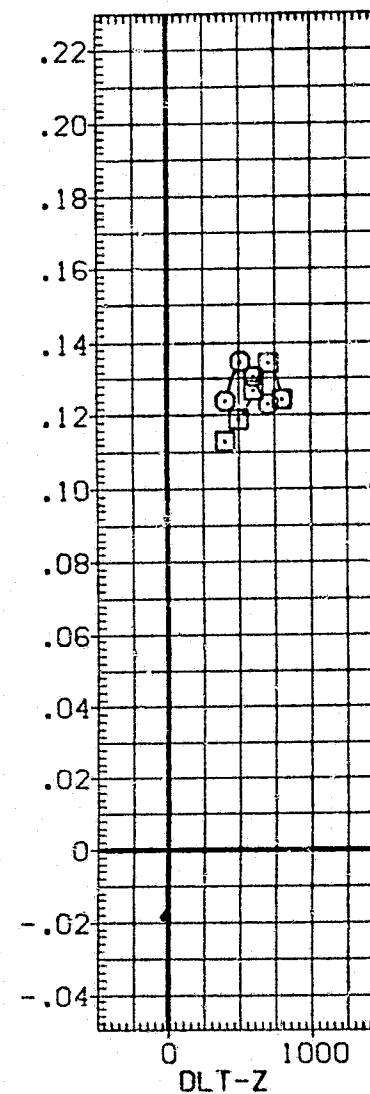
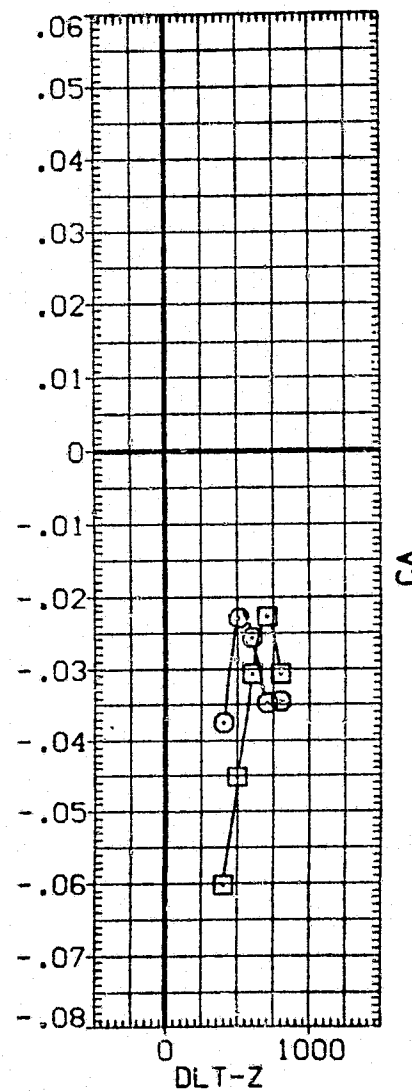
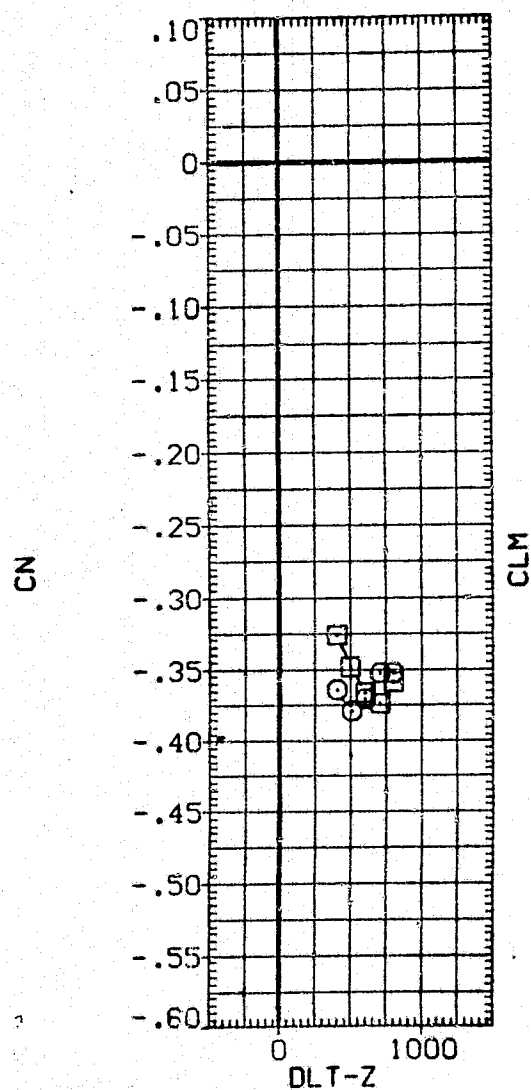


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR292)

SYMBOL \square \square

DLT-X		DLT-Y		PARAMETRIC VALUES	
.490		60.000	ALPHA	-10.000	
400.380		BETA	.000	DLTALF	-10.000
		DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	-40.000
		GRID	10.000		

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

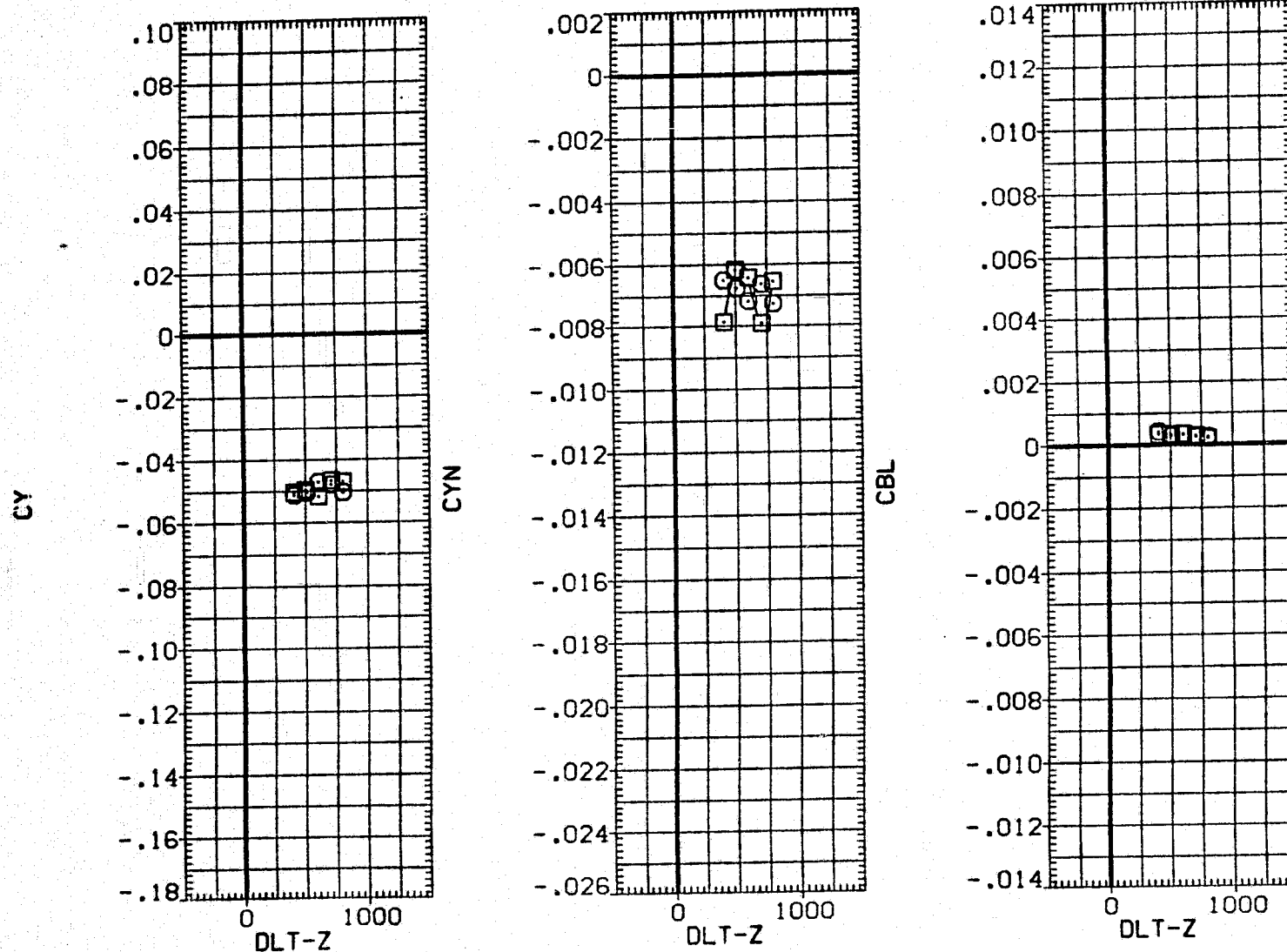


FIGURE 35 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, ELEVON=-40)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR296)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
□	.462	60.000	60.000	.000	.000
□	400.460	BETA	.000	.000	.000
		DLTBTA	3.000	MACH	5.930
		AILRON	15.000	ELEVON	.000
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

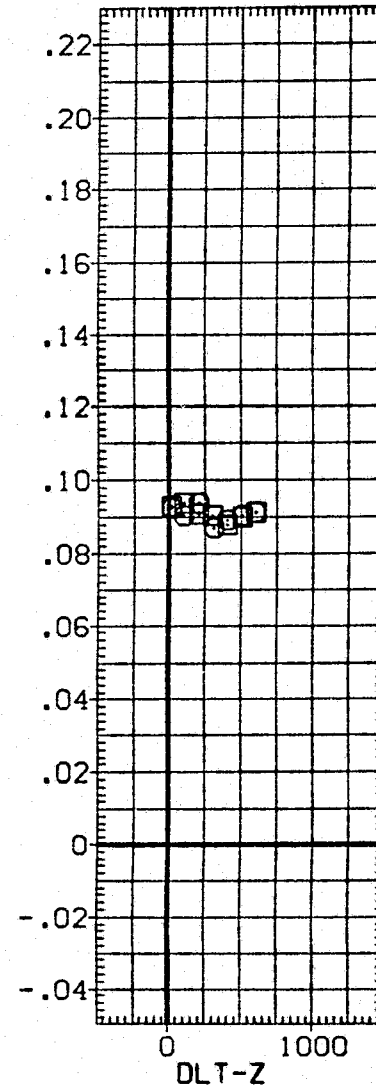
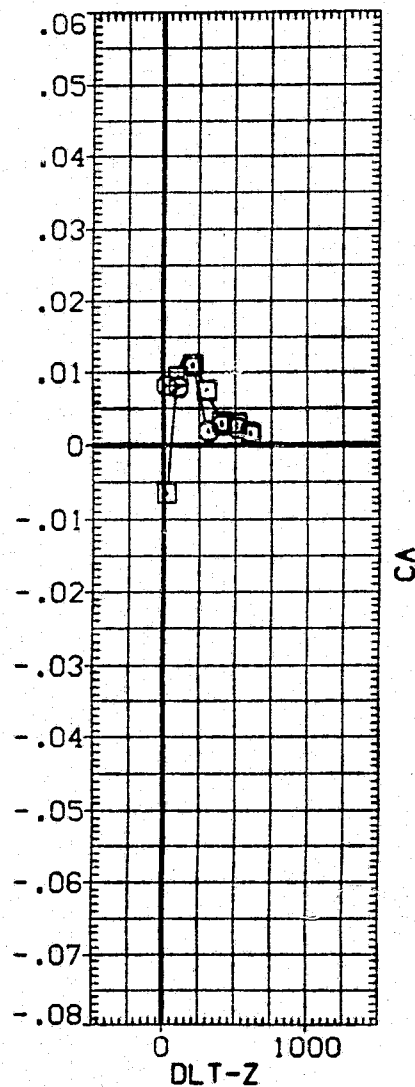
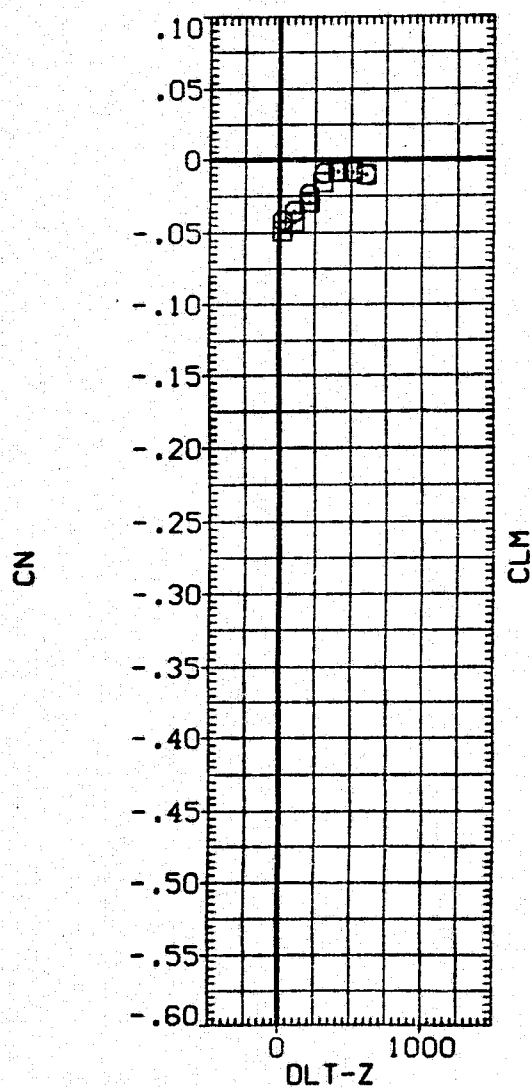


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR296)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.462	60.000	ALPHA	.000
□	400.460	BETA	DLTALF	.000
		DLTBT	MACH	5.930
		AILRON	ELEVON	.000
		GRID		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

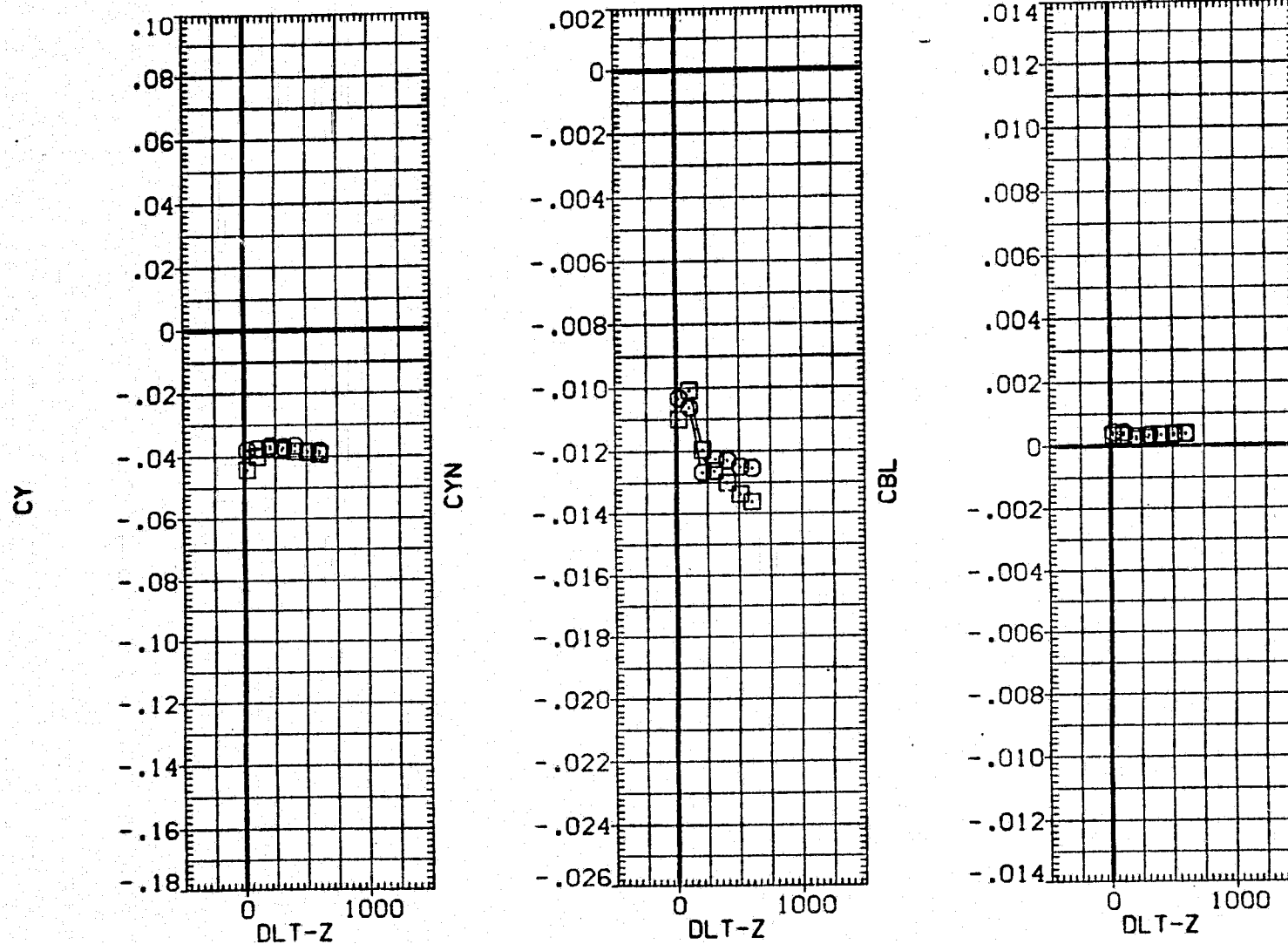


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR297)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.435	60.000	ALPHA	.000
□	400.370	.000	DLTALF	-10.000
		3.000	MACH	5.930
		15.000	ELEVON	.000
		13.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

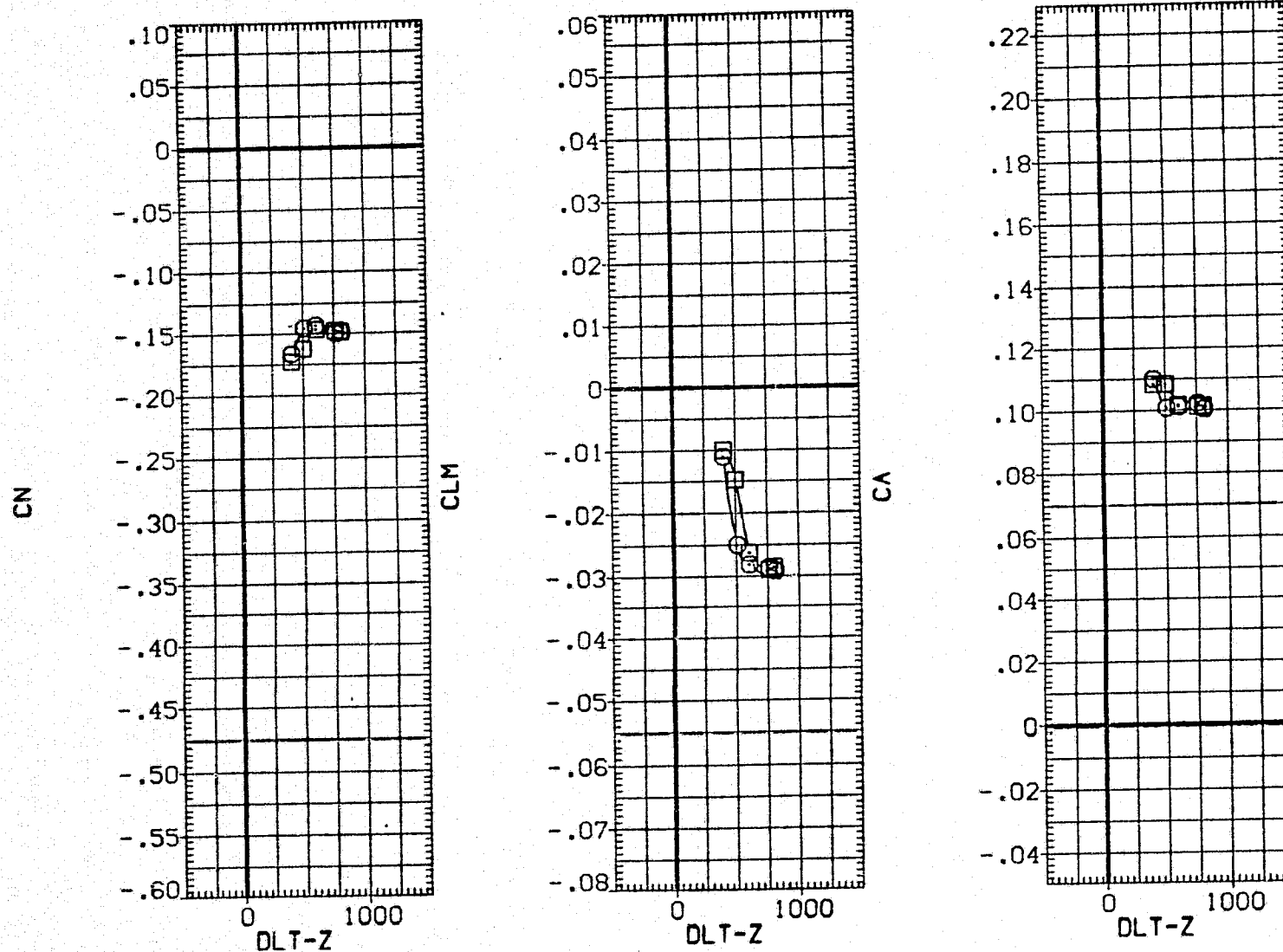


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR297)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.435	60.000	ALPHA	.000	
□	400.370	BETA	.000	DLTALF	-10.000
		DLTBTA	3.000	MACH	5.930
		AILRON	15.000	ELEVON	.000
		GRID	13.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

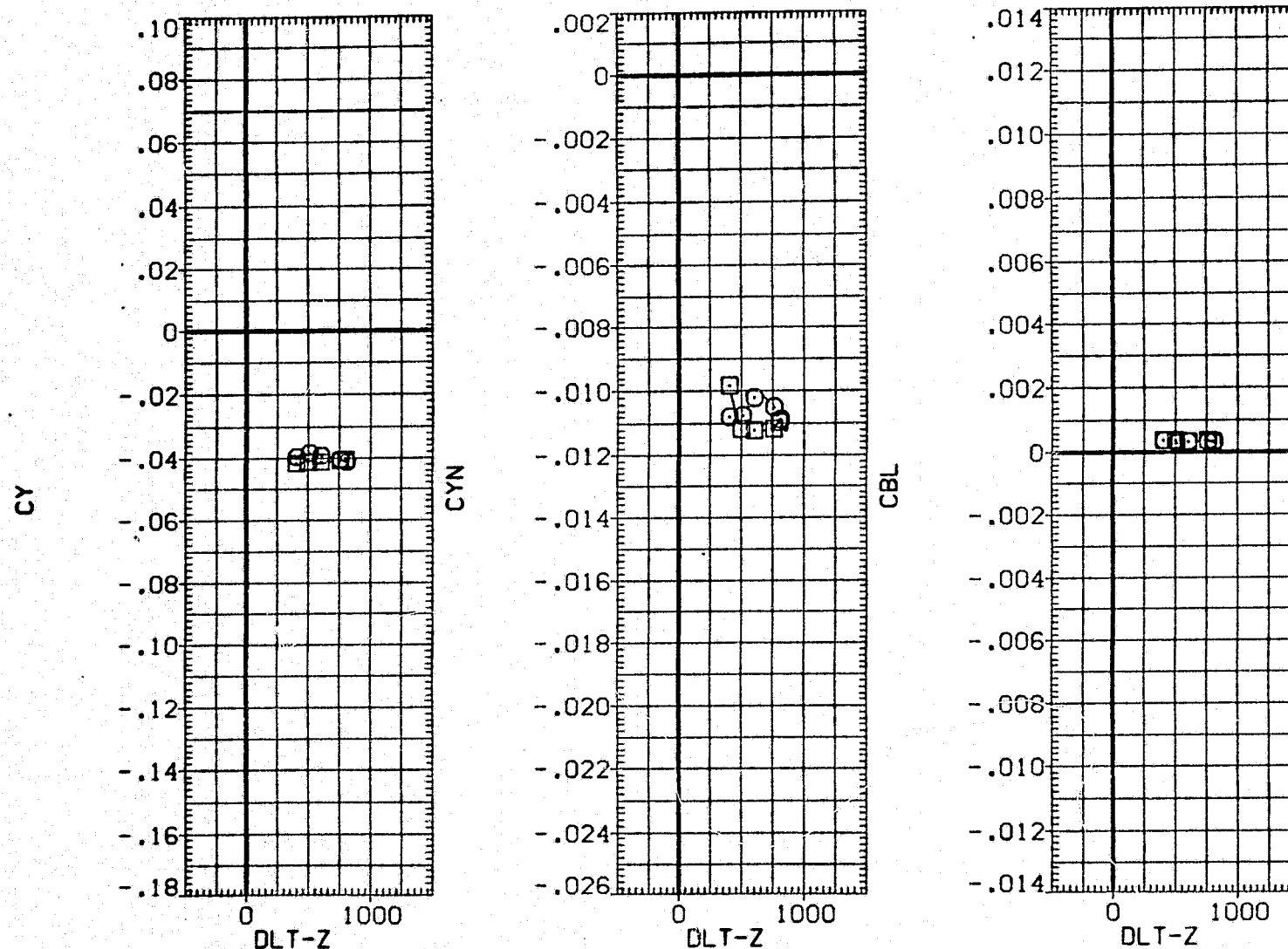


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR299)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLTALF	MACH
○	.402	60.000	.000	.000	-20.000	5.930
□	400.530	BETA	.000			
		DLTBT	3.000			
		AILRON	15.000			
		GRID	13.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

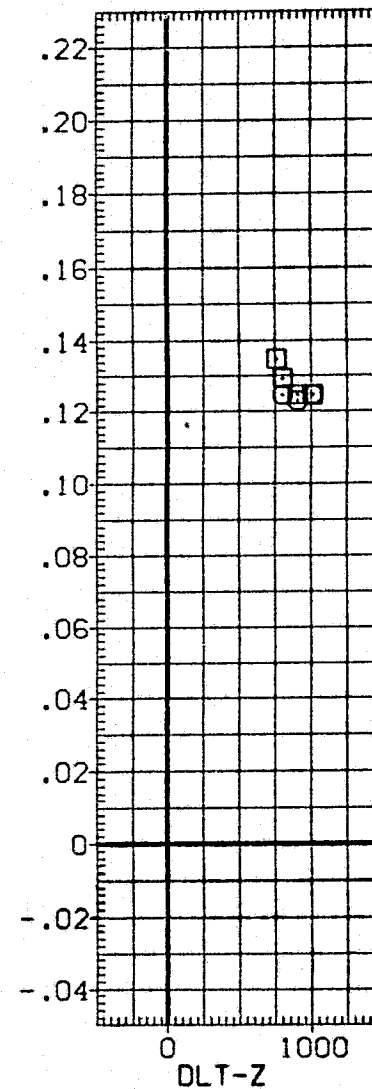
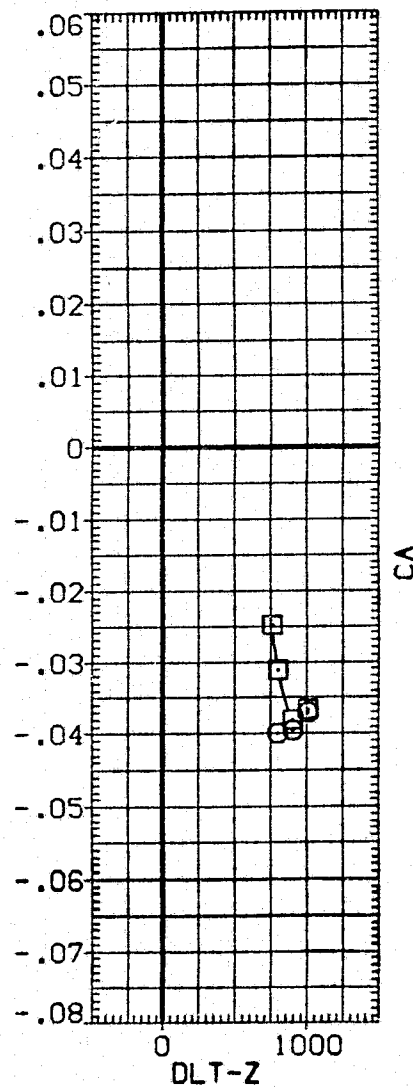
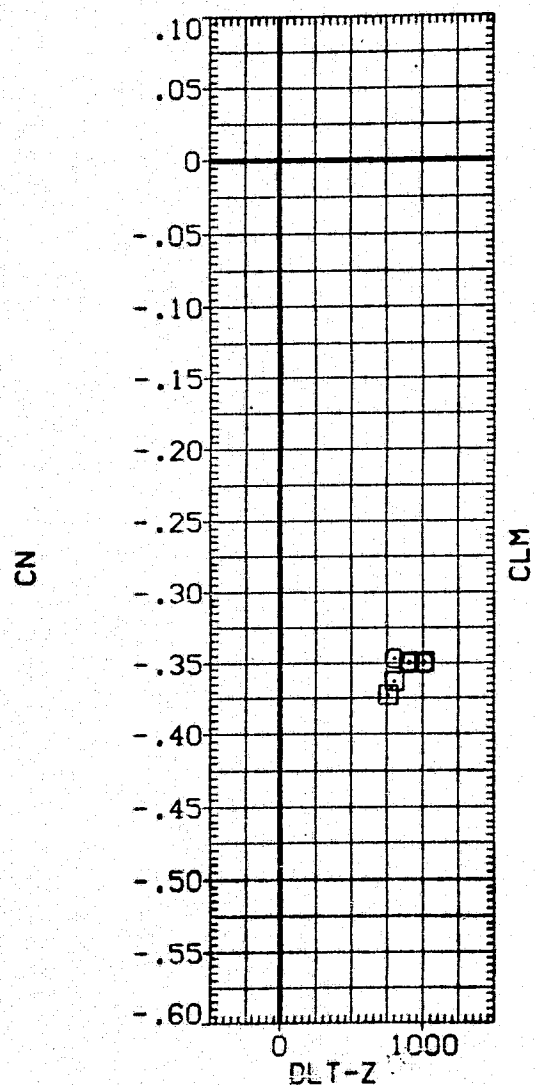


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR299)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.402	BETA	60.000	.000
□	400.530	DLTBTA	3.000	-20.000
		AILRON	15.000	5.930
		GRID	13.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

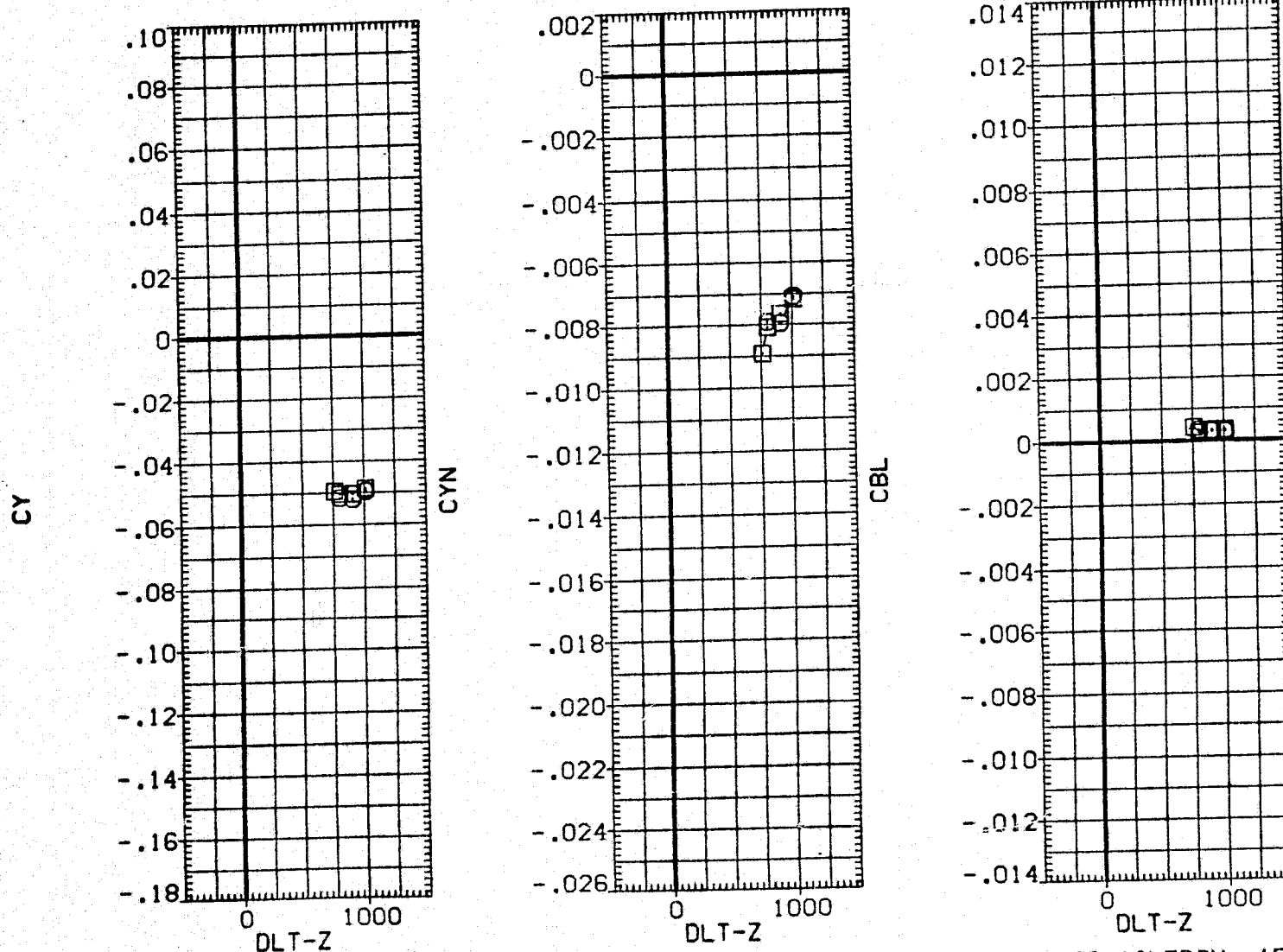


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR293)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
O	.498	BETA	60.000	ALPHA .000
		DLTBTA	3.000	DLTALF .000
		AILRON	15.000	MACH 5.930
		GRID	14.000	ELEVON .000

REFERENCE INFORMATION	
SREF	2690.0000
LREF	1290.3000
BREF	1290.3000
XMRP	1360.1000
YMRP	.0000
ZMRP	416.4000
SCALE	.0100
SQ.FT.	IN.
IN.	IN.
IN.	XT
IN.	YT
IN.	ZT

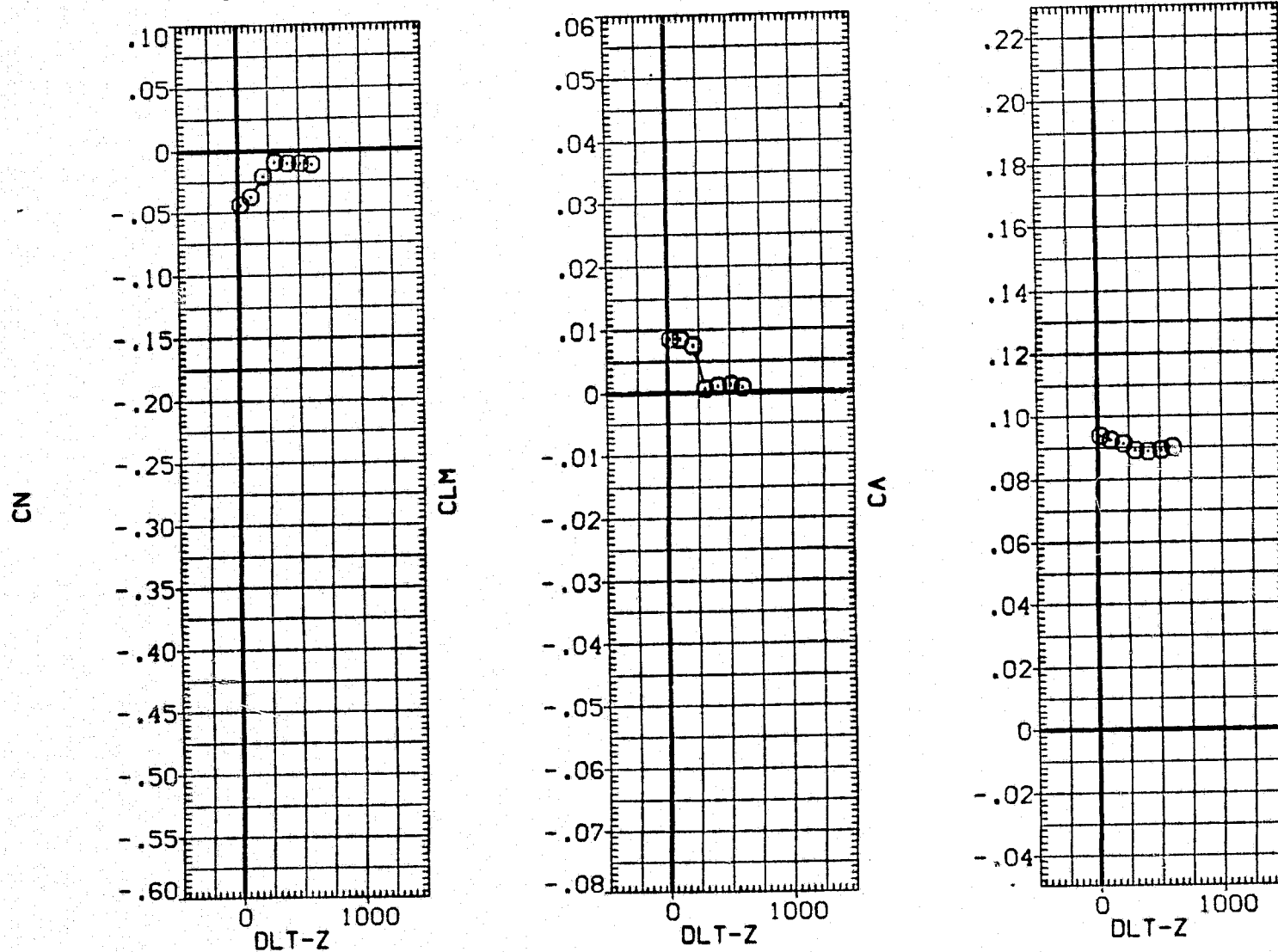


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR293)

SYMBOL	DLT-X	PARAMETRIC VALUES
O	.498	DLT-Y 60.000 ALPHA .000
		BETA 3.000 DLTALF .000
		DLTBTA 3.000 MACH 5.930
		AILRON 15.000 ELEVON .000
		GRID 14.000

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

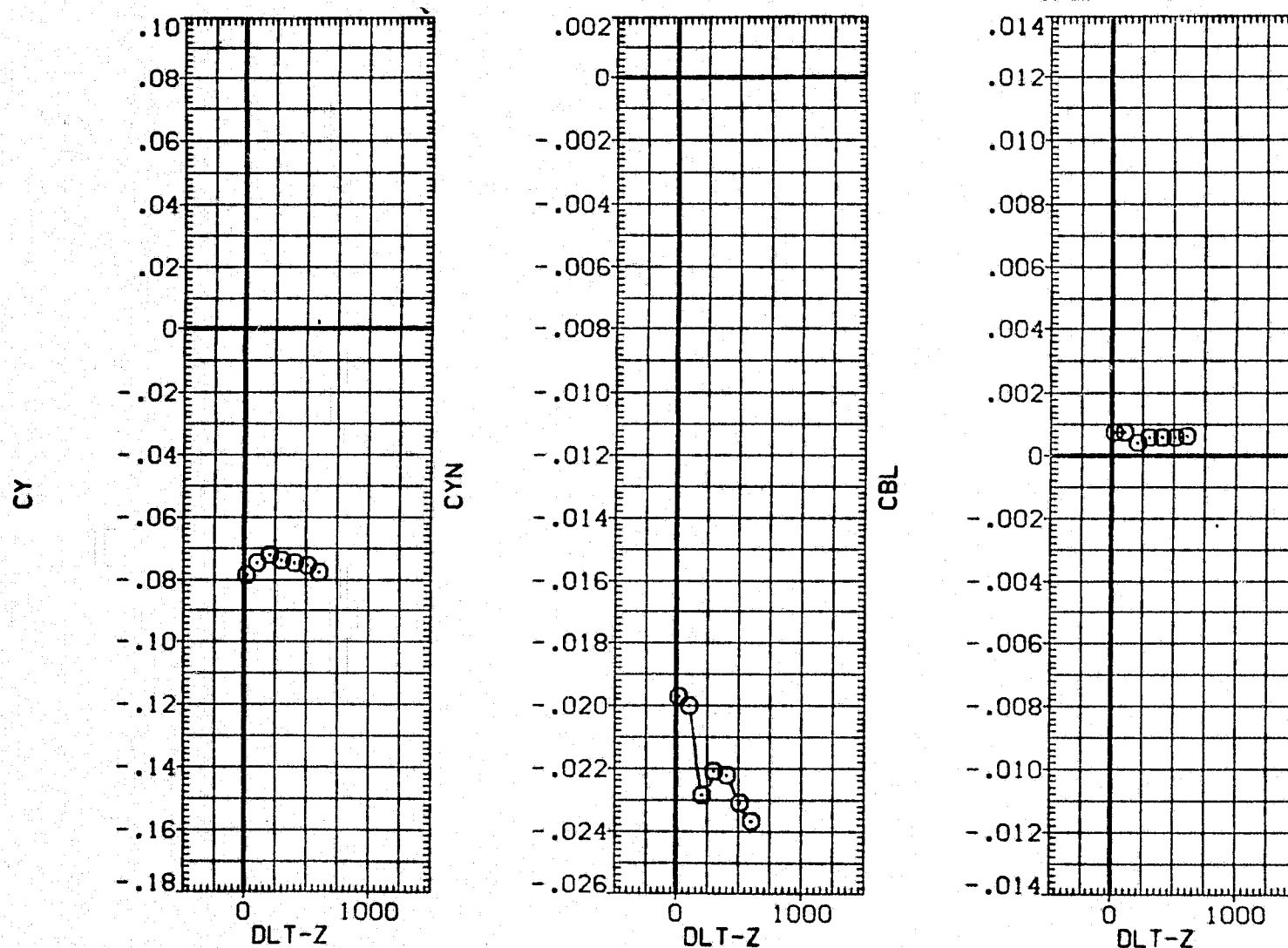


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,AILRON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR294)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.446	60.000	DLTALF	-10.000	.000
		BETA	3.000	MACH	5.930
		DLTBTA	3.000	ELEVON	.000
		AILRON	15.000		
		GRID	14.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.5000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

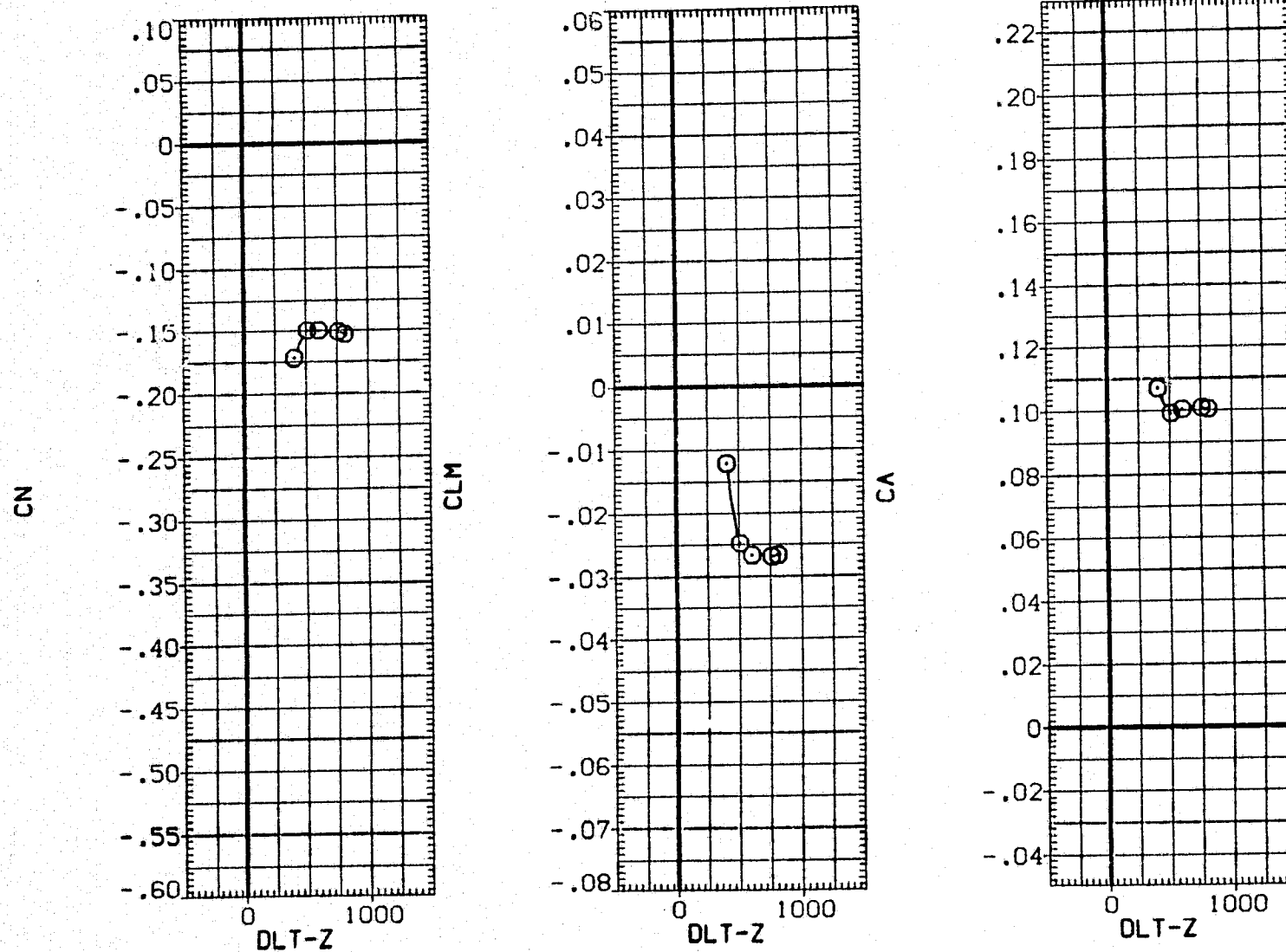


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
O	.446	60.000	BETA	3.000	DLTALF
		3.000	DLTBTA	3.000	MACH
		15.000	AILRON	15.000	ELEVON
		14.000	GRID	14.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

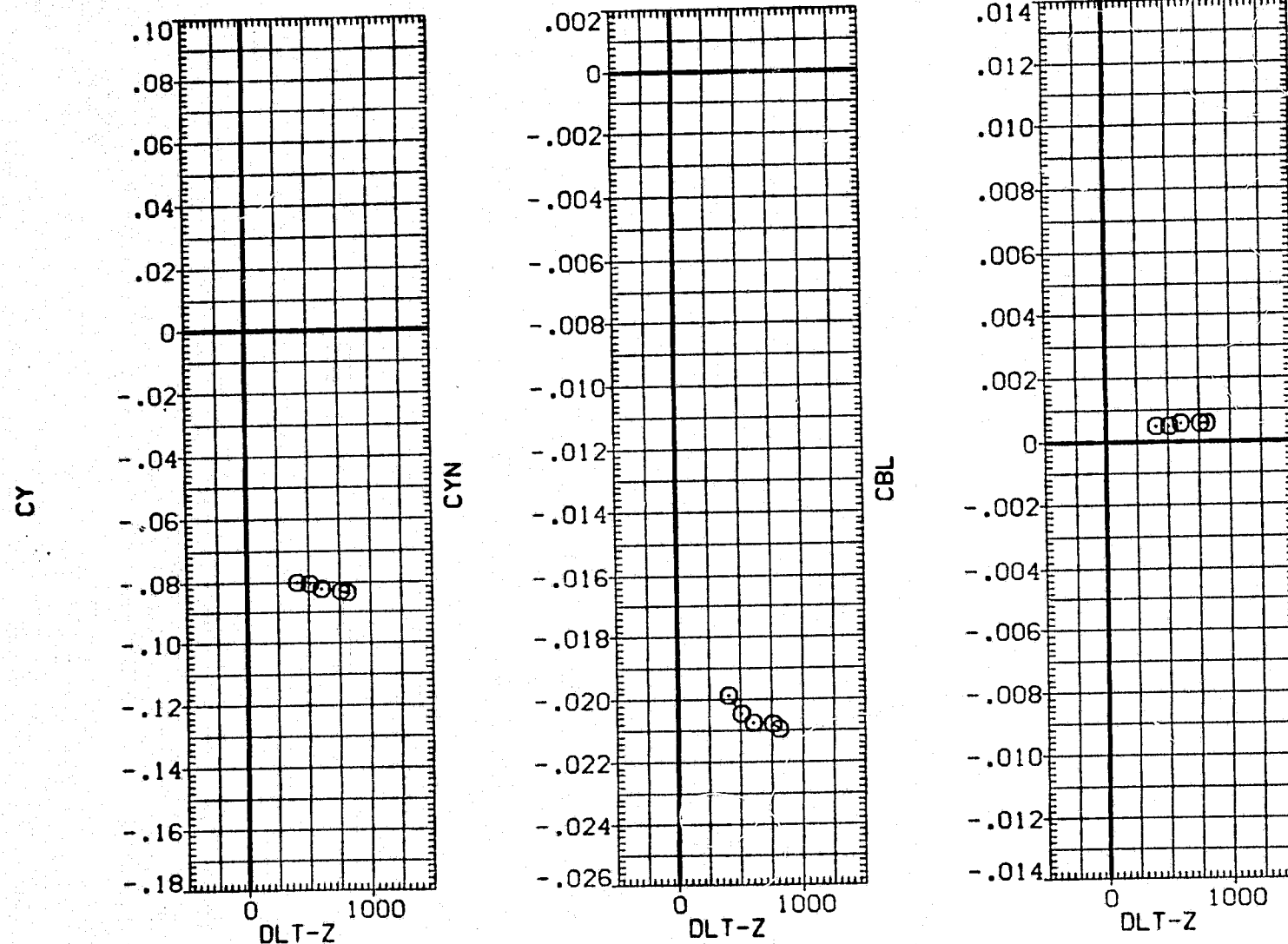


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR295)

SYMBOL	DLT-X	PARAMETRIC VALUES
O	.560	DLT-Y 60.000 ALPHA .000
		BETA 3.000 DLTALF -20.000
		DLTBTA 3.000 MACH 5.930
		AILRON 15.000 ELEVON .000
		GRID 14.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

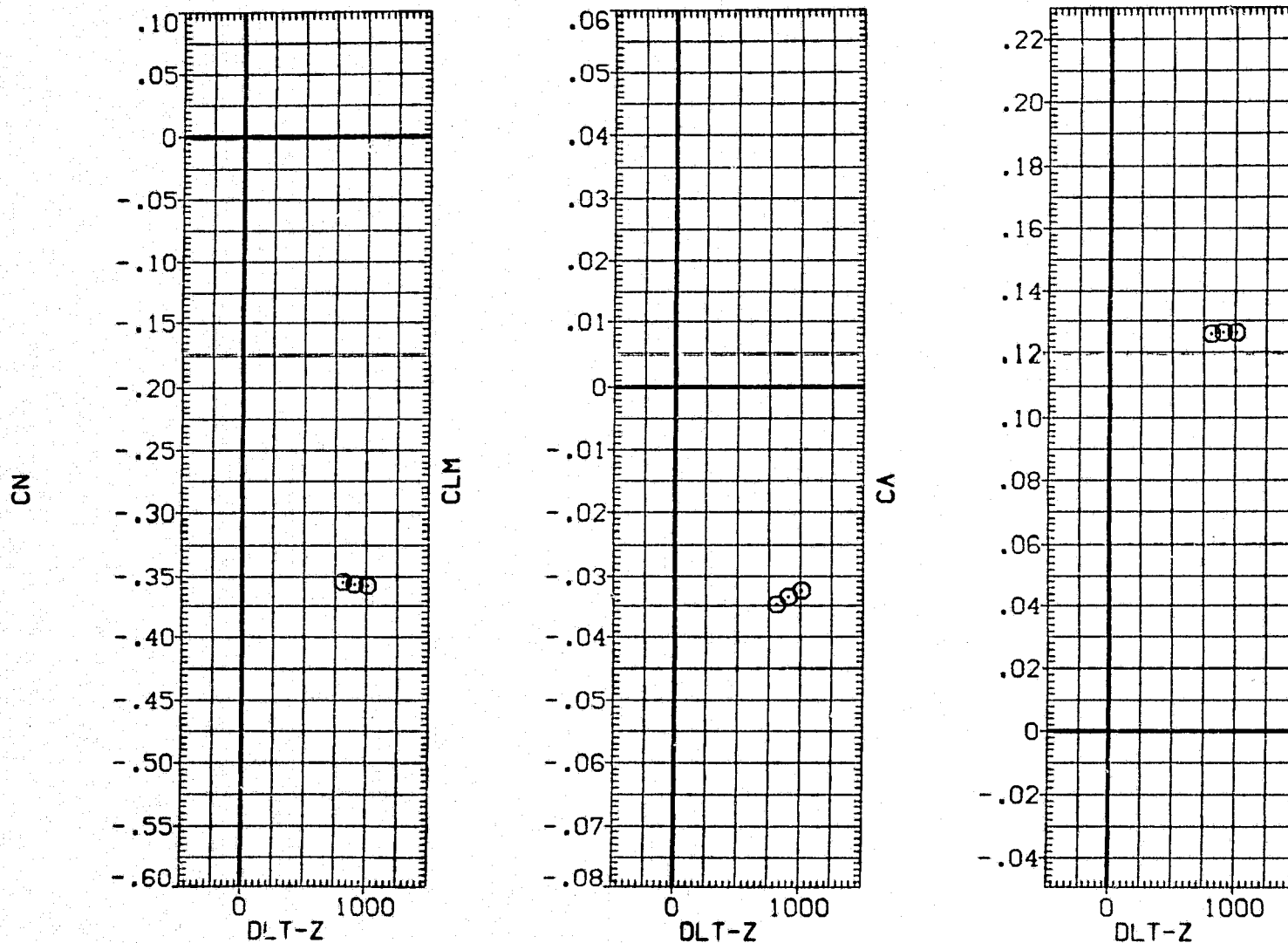
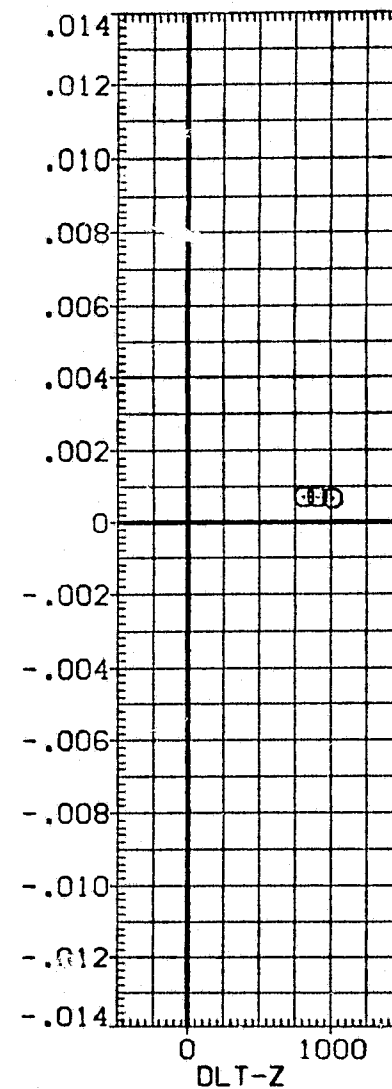
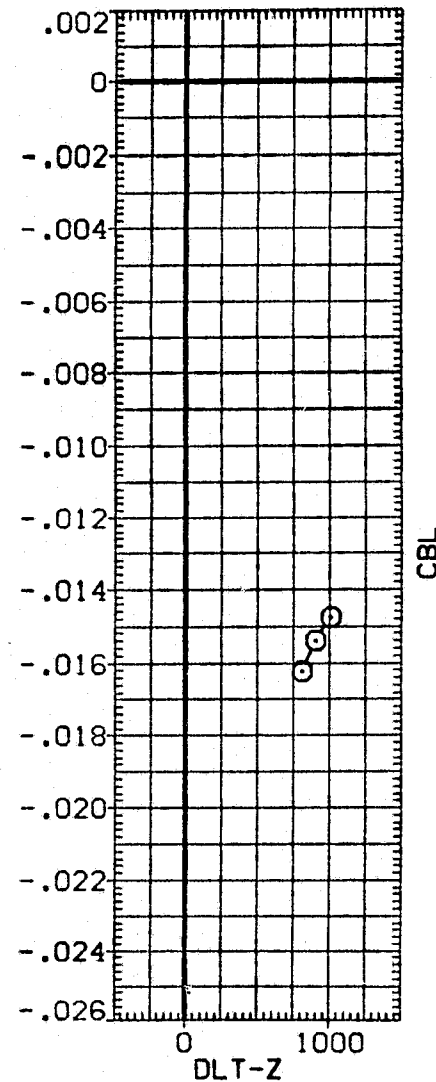
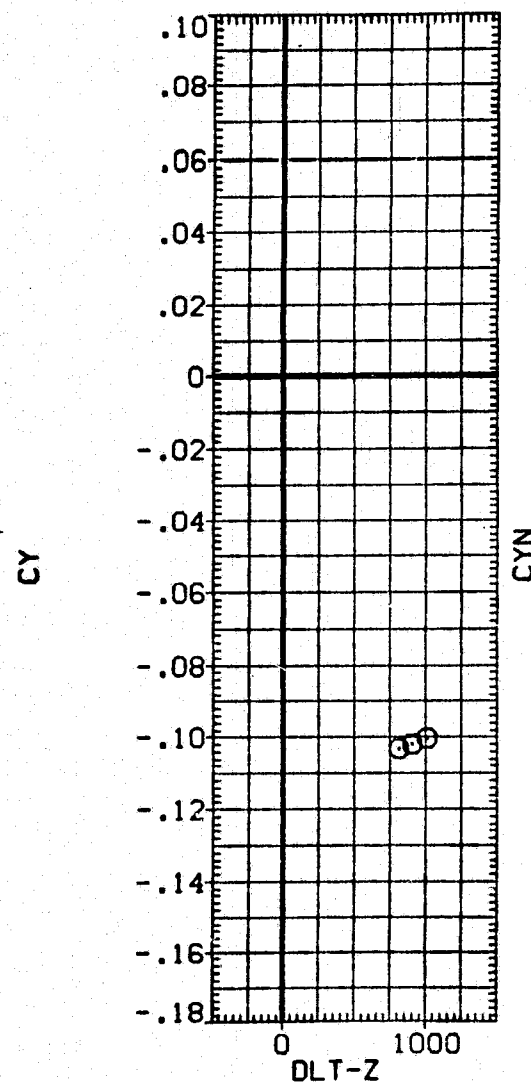


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR295)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.560	BETA	60.000	.000	
		DLTBTA	3.000	DLTALF	-20.000
		AILRON	3.000	MACH	5.930
		GRID	15.000	ELEVON	.000
			14.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	



FIG

°.93,AILERON= 15)

PAGE 1196

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR300)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.616	60.000	ALPHA	5.000	
□	400.450	.000	DLTALF	.000	
		3.000	MACH	5.930	
		15.000	ELEVON	.000	
		12.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

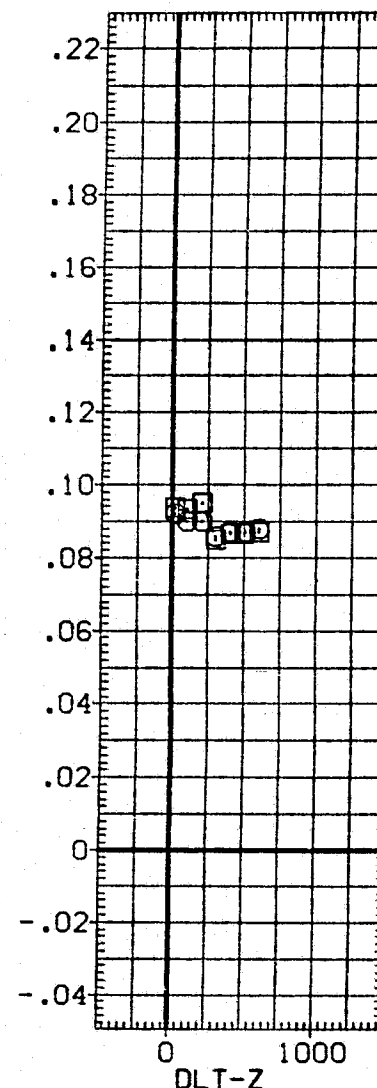
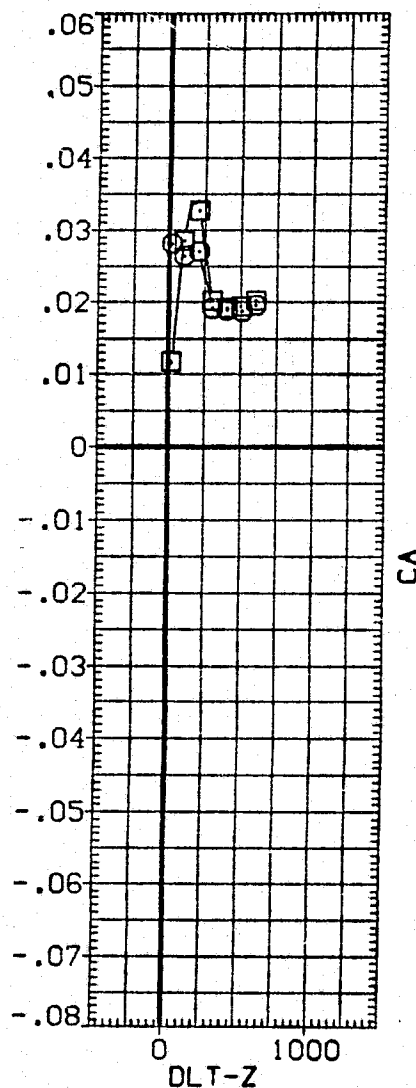
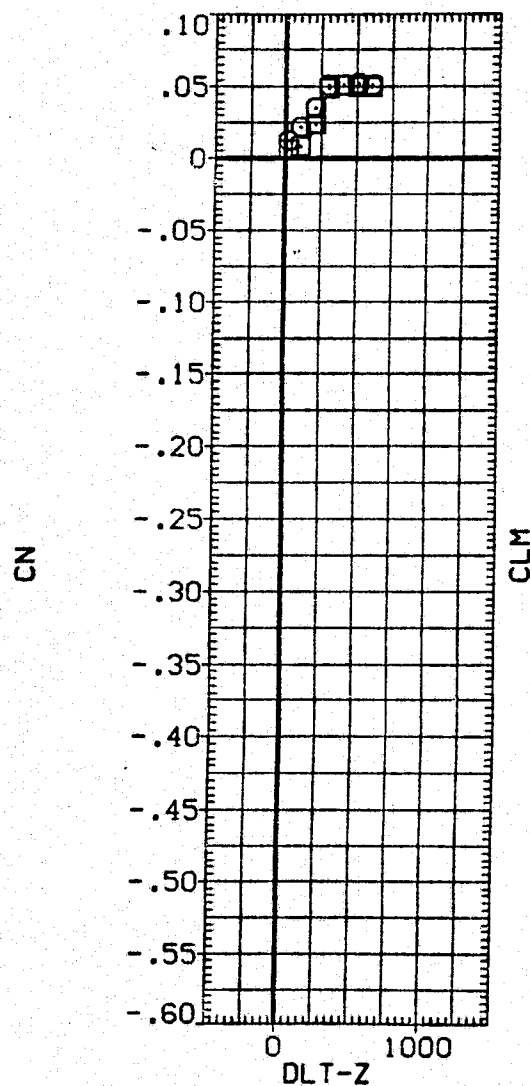


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR300)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.616	60.000	BETA	.000	5.000
□	400.450	3.000	DLTBT	15.000	.000
		15.000	AILRON	5.930	
		.000	GRID	.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

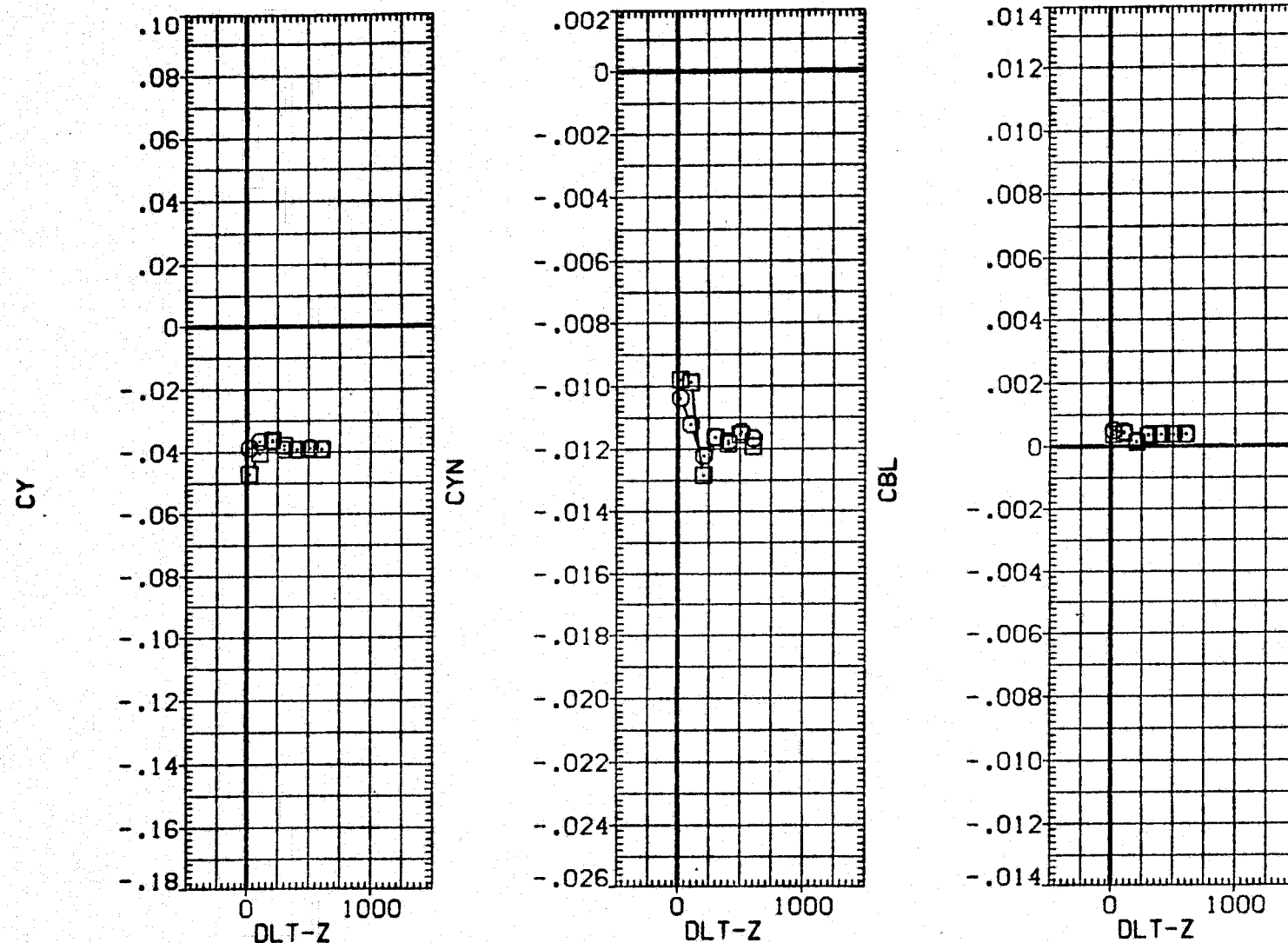


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=5.93,AILRON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR301)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.533		60.000	5.000	
□	400.490	BETA	.000	DLTALF	-10.000
		DLTBTA	3.000	MACH	5.930
		AILRON	15.000	ELEVON	.000
		GRID	12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

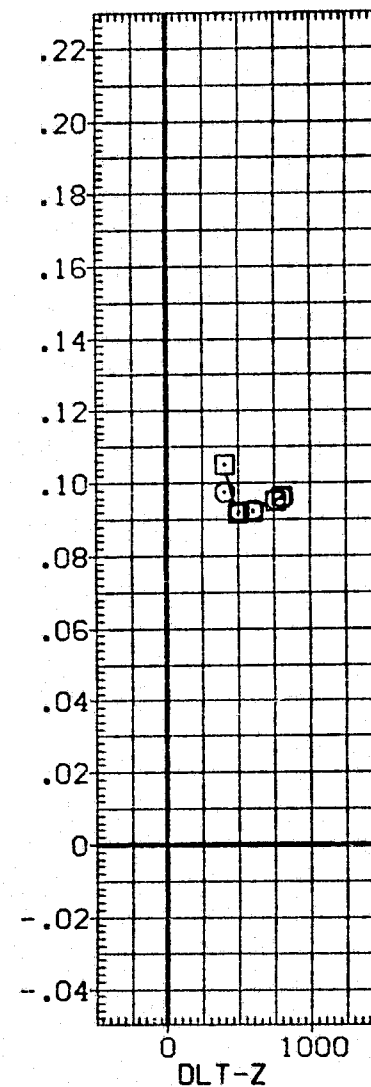
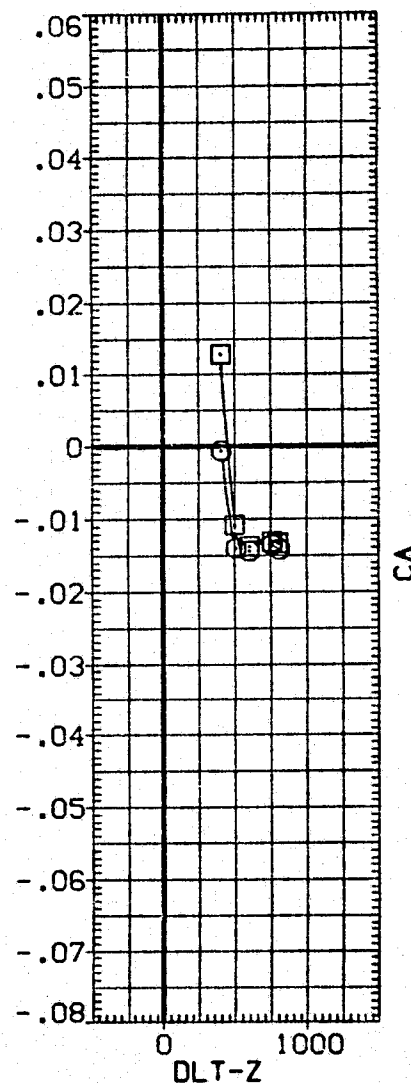
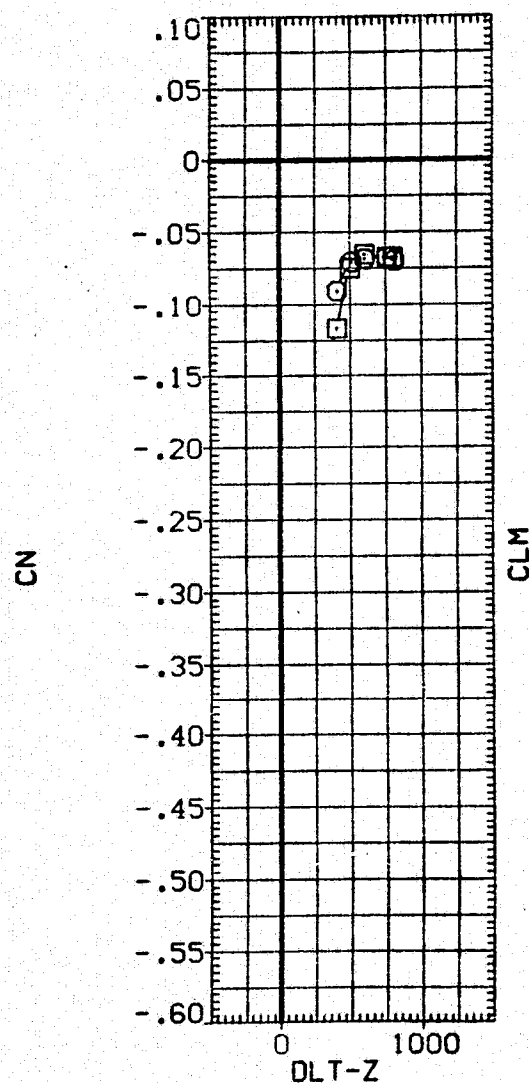


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR301)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	ALPHA	DLTALF	MACH
○	.533	60.000	5.000	-10.000	5.930
□	400.490	.000	.000	.000	.000
		DLTBTA	ELEVON		
		3.000	15.000		
		GRID	12.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

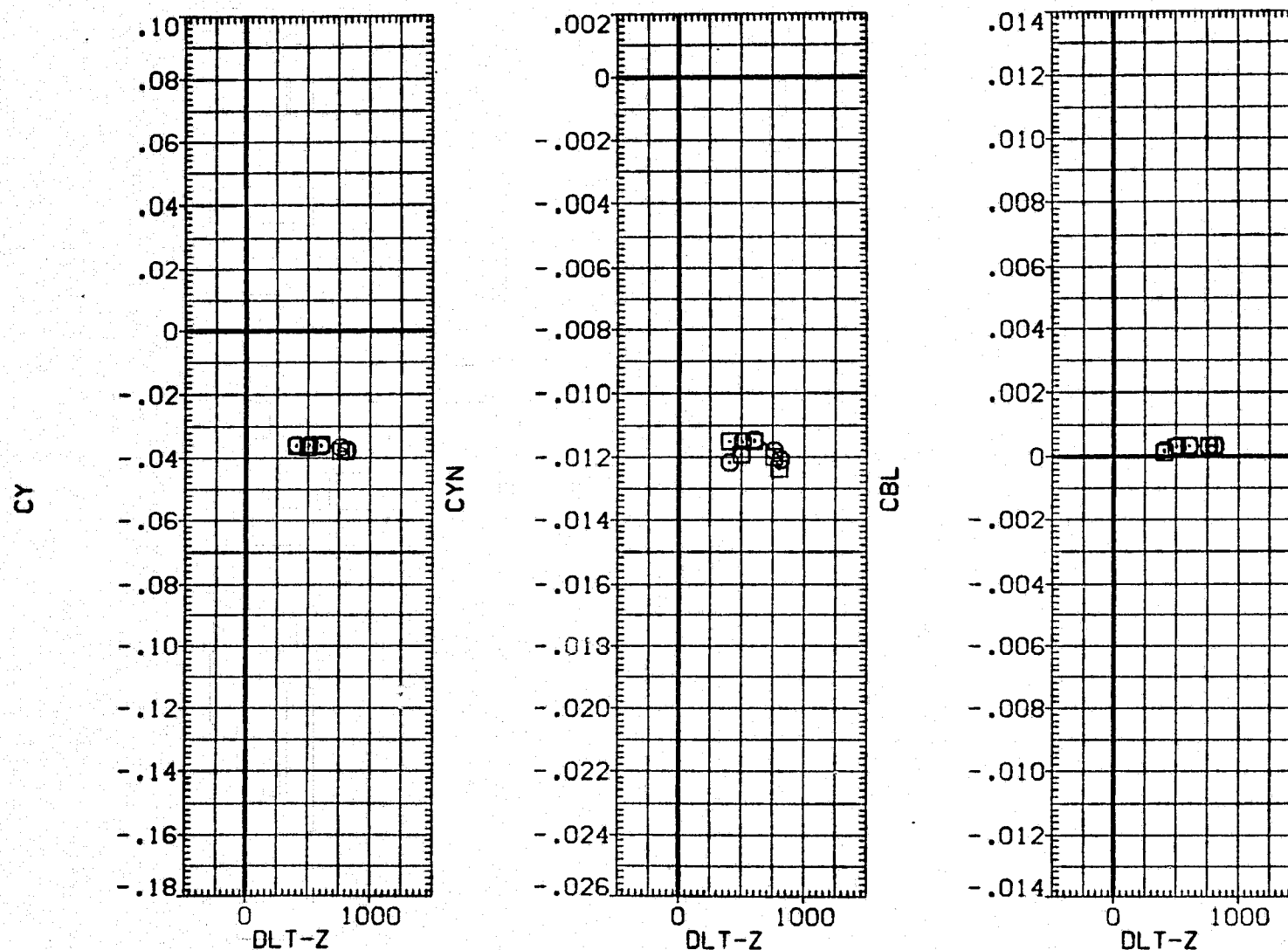


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR303)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLTALF	MACH
○	.473	60.000	BETA	5.000	-20.000	5.930
□	400.410	3.000	DLTBTA	5.930	.000	
		15.000	AILRON			
		12.000	GRID			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

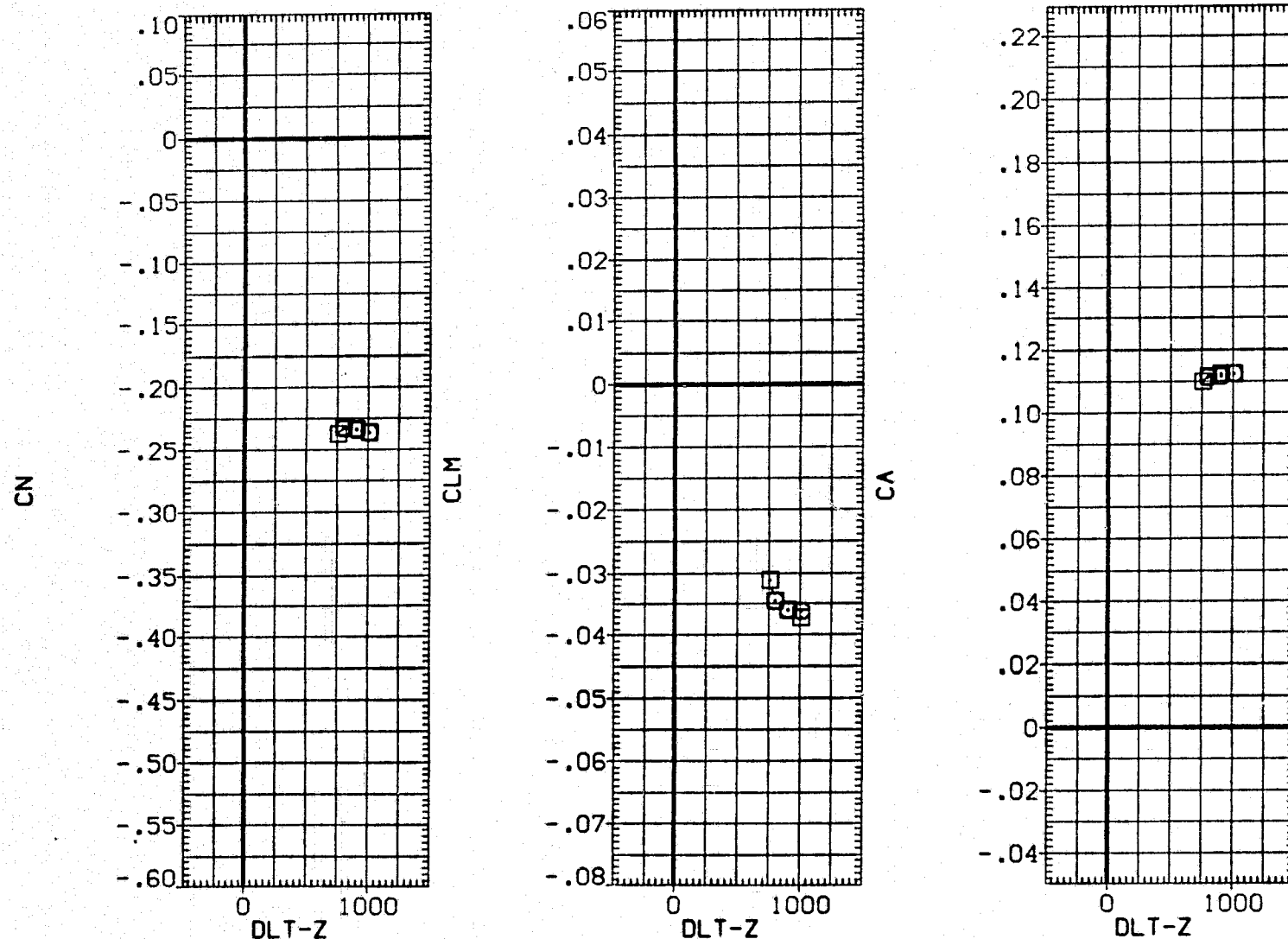


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR303)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES
○	.473	60.000	ALPHA 5.000
□	400.410	.000	DLTALF -20.000
		3.000	MACH 5.930
		15.000	ELEVON .000
		12.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	.290.3000 IN.
BREF	1290.3000 IN.
YMRP	1360.1000 IN. XT
ZMRP	.0000 IN. YT
SCALE	416.4000 IN. ZT

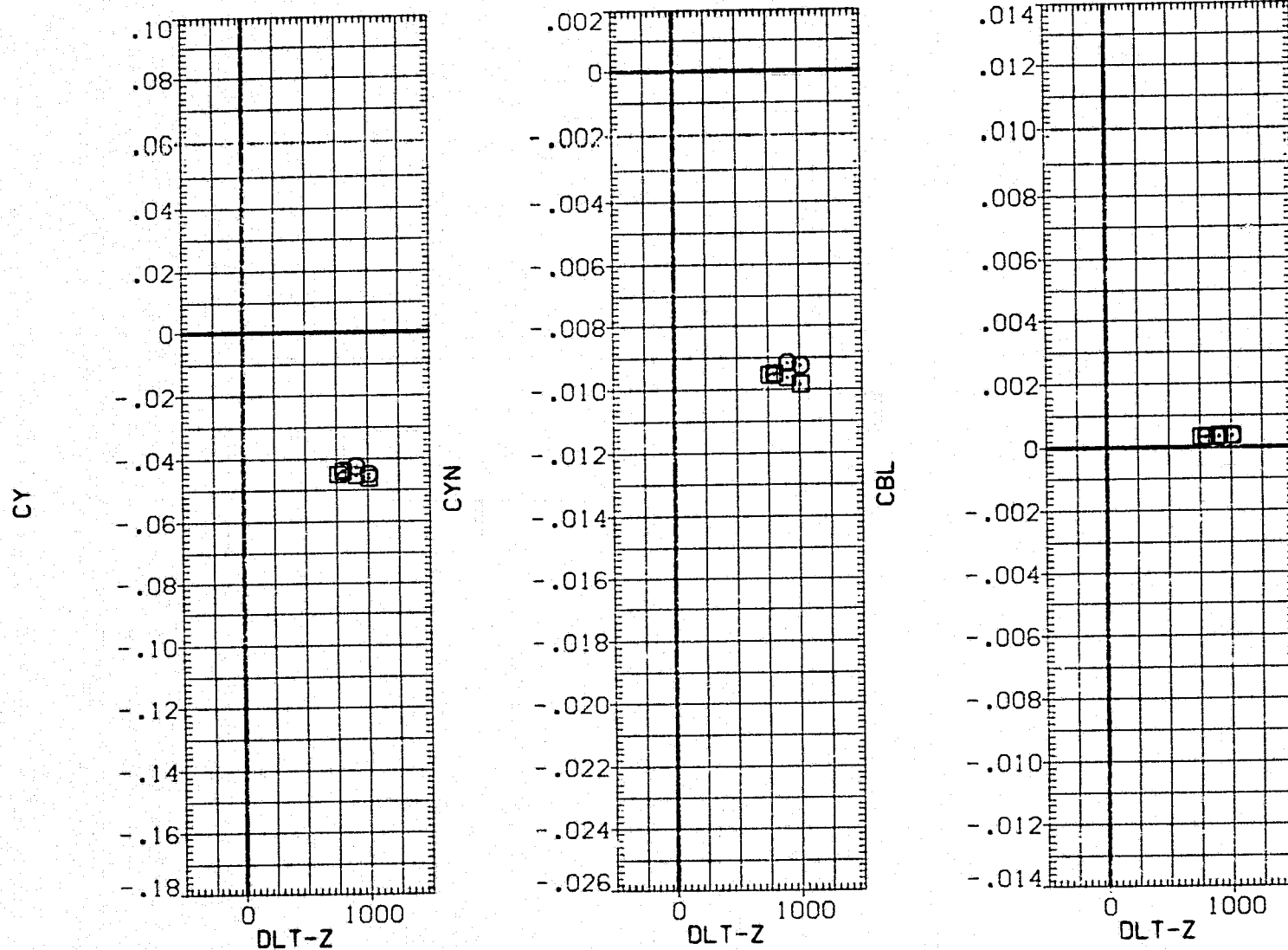


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR304)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	400.440	BETA	60.000	ALPHA	-5.000
		DLTBT	3.000	DLTALF	.000
		AILRON	15.000	MACH	5.930
		GRID	11.000	ELEVON	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

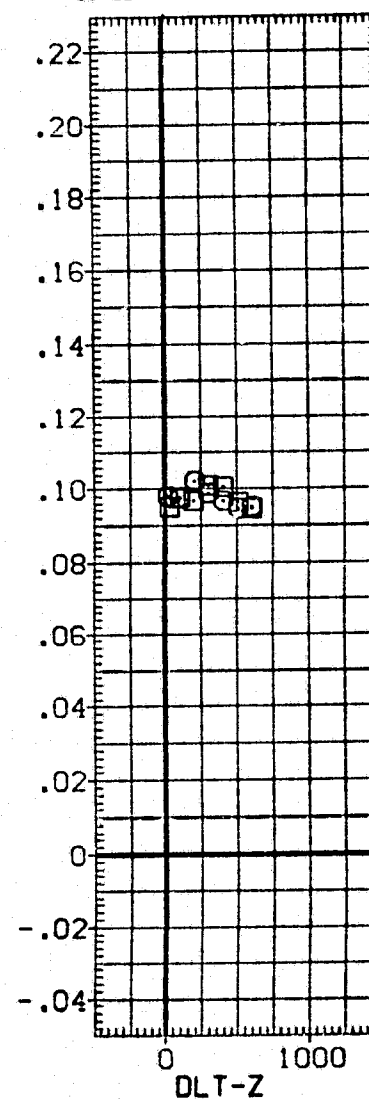
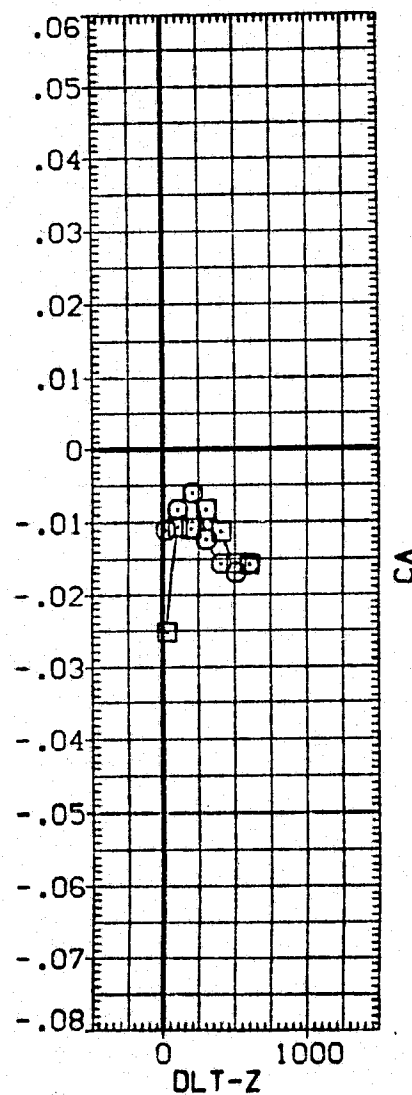
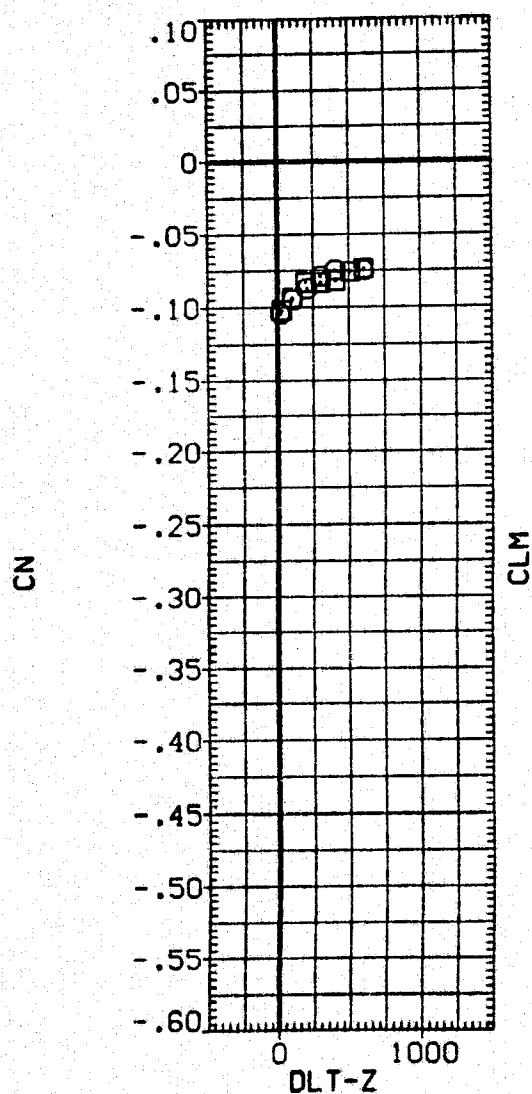


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR304)

SYMBOL



DLT-X

.582
400.440

DLT-Y

BETA

DLTBTA

AILERON

GRID

PARAMETRIC VALUES

60.000

.000

3.000

15.000

11.000

ALPHA

DLTALF

MACH

ELEVON

-5.000

.000

5.930

.000

REFERENCE INFORMATION

SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

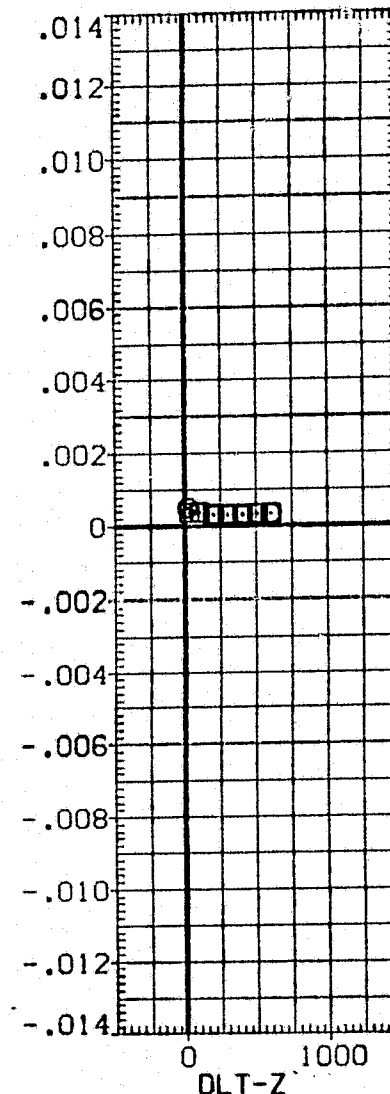
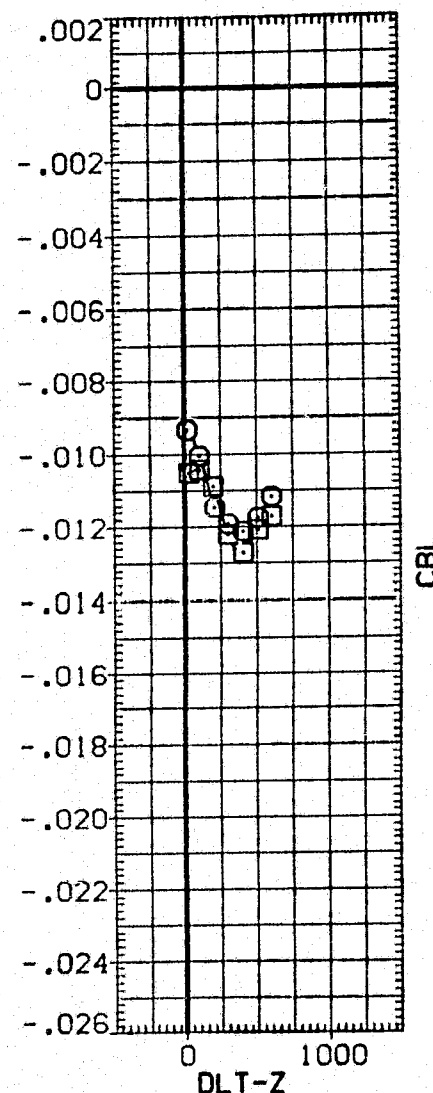
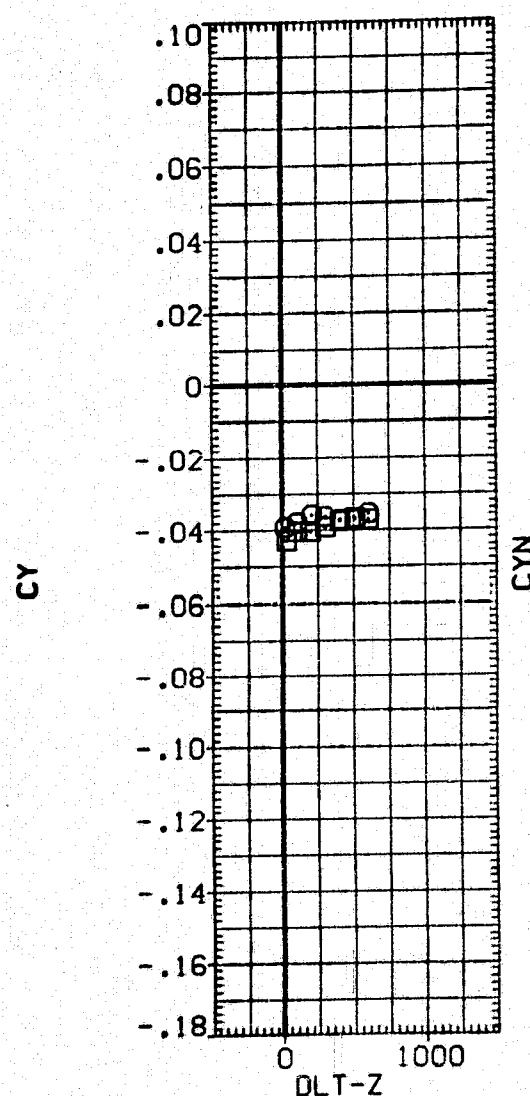


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR305)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.434	60.000	ALPHA	-5.000
□	400.510	.000	DLTALF	-10.000
		3.000	MACH	5.930
		15.000	ELEVON	.000
		11.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

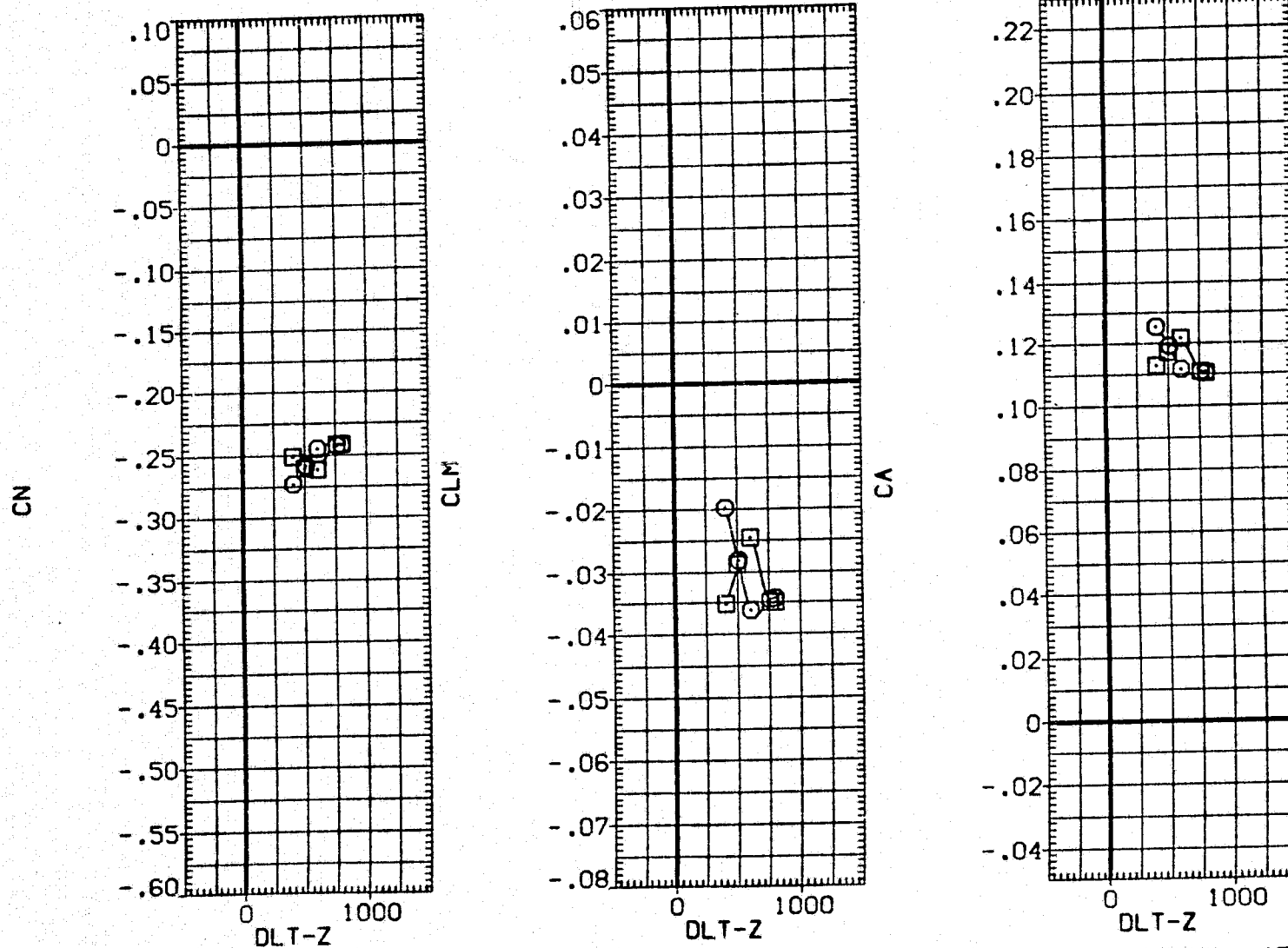


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR305)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.434	DLT-Y	60.000	ALPHA	-5.000
□	400.510	BETA	.000	DLTALF	-10.000
		DLTBTA	3.000	MACH	5.930
		AILRON	15.000	ELEVON	.000
		GRID	11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

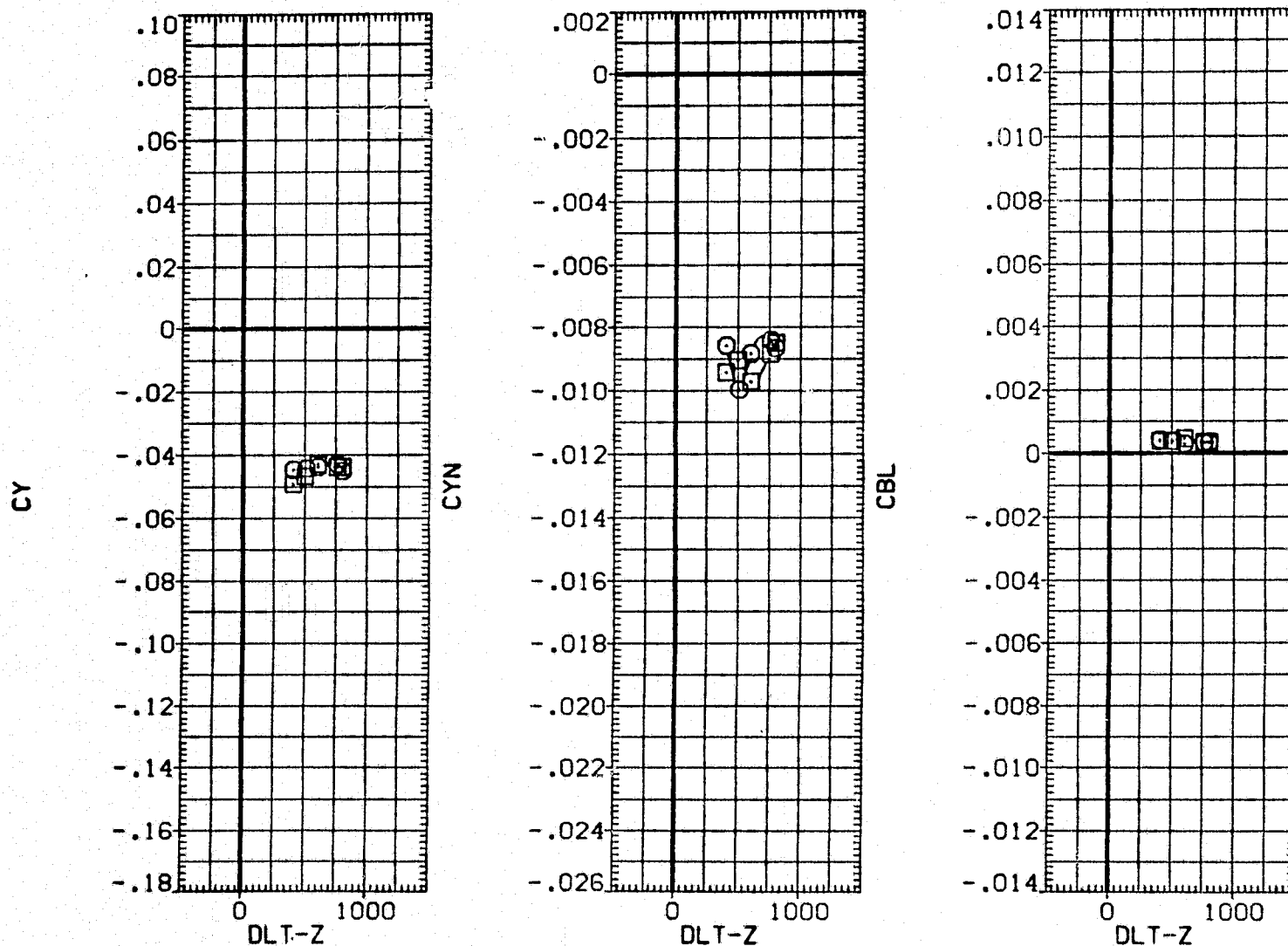


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR307)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.481	BETA	60.000	ALPHA
□	400.490	DLTBT	.000	DLTALF
		AILRON	3.000	MACH
		GRID	15.000	ELEVON
			11.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

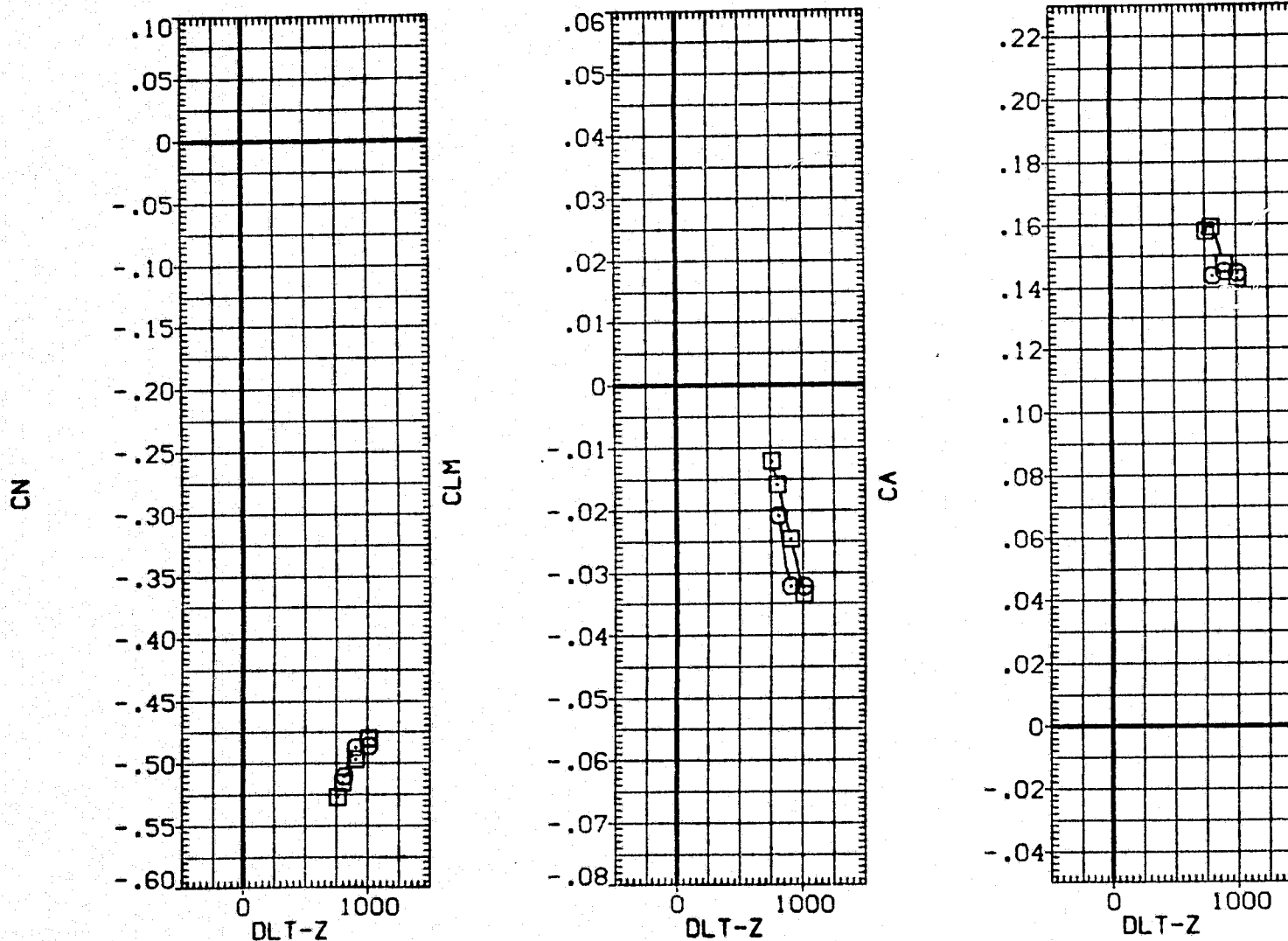


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR307)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.481	60.000	-5.000	-20.000
□	400.490	.000	5.930	.000
	DLTBT	3.000		
	AILRON	15.000		
	GRID	11.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

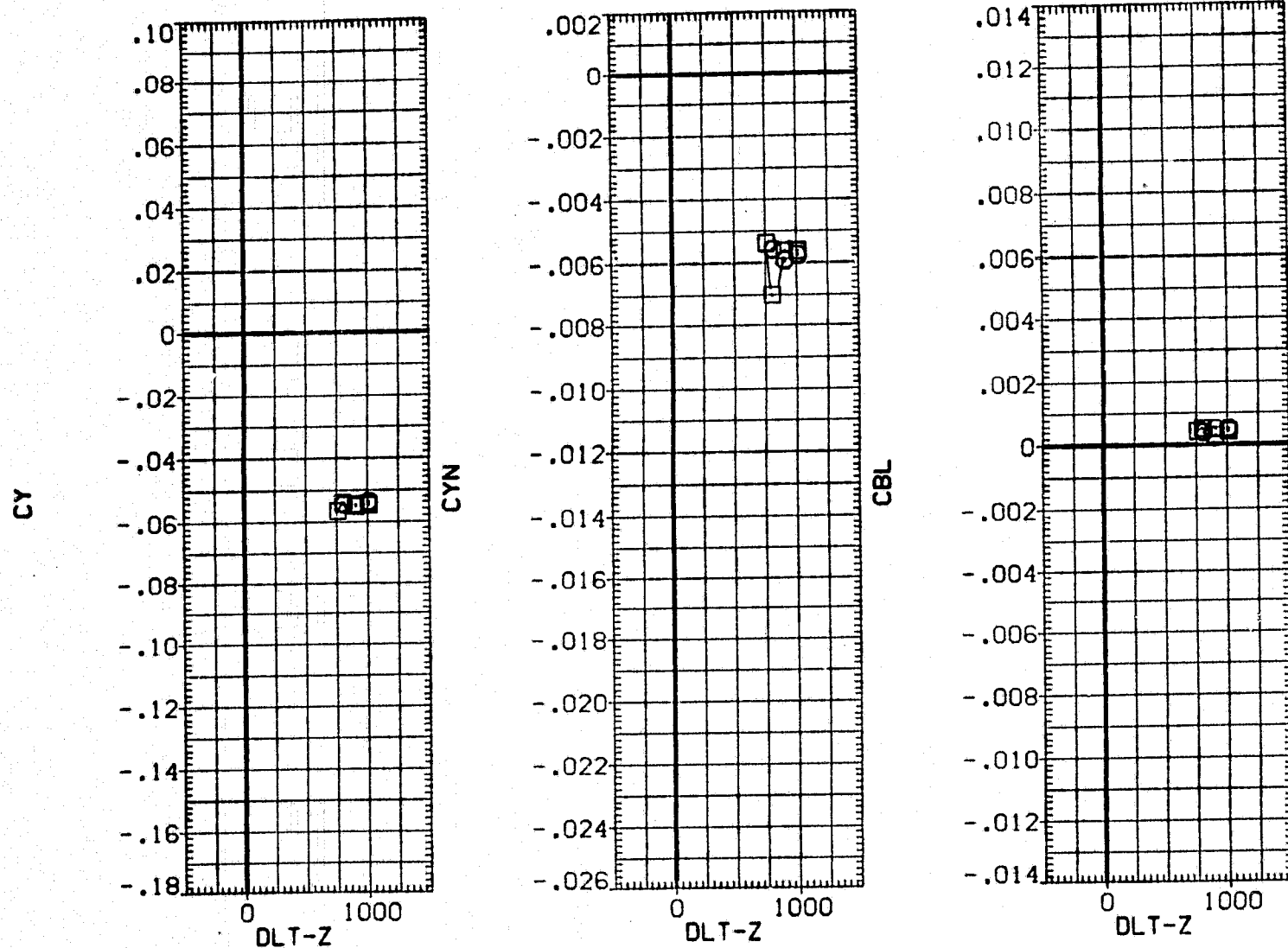


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR308)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
			60.000	ALPHA	-10.000
○	.395	BETA	.000	DLTALF	.000
□	400.480	DLTBTA	3.000	MACH	5.930
		AILRON	15.000	ELEVON	.000
		GRID	10.000		

REFERENCE INFORMATION

SREF	2690.0000	SO, FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

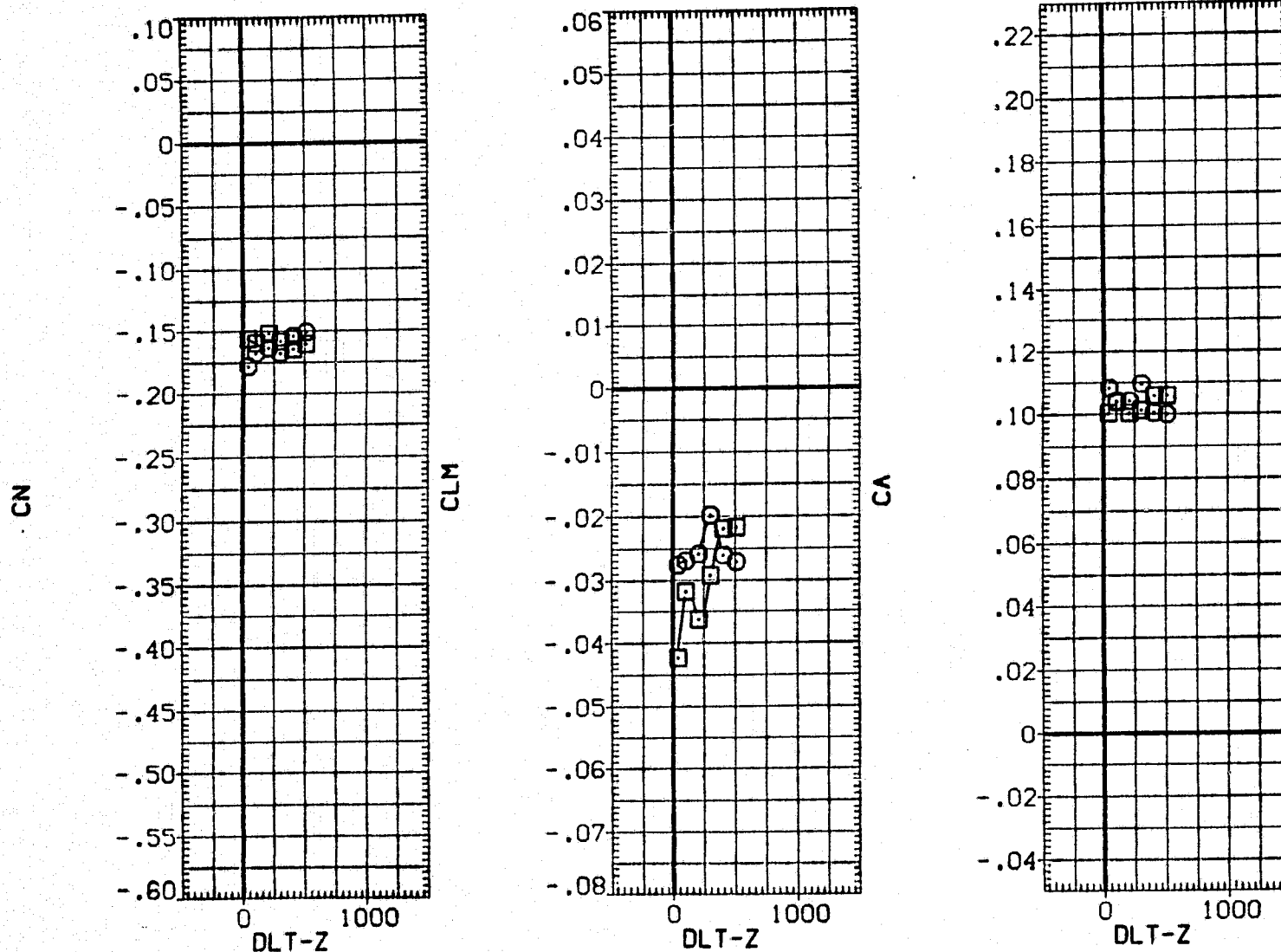


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR308)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.395	60.000	BETA	.000	-10.000
□	400.480	3.000	DLTBT	5.930	.000
		15.000	AILRON	.000	
		10.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

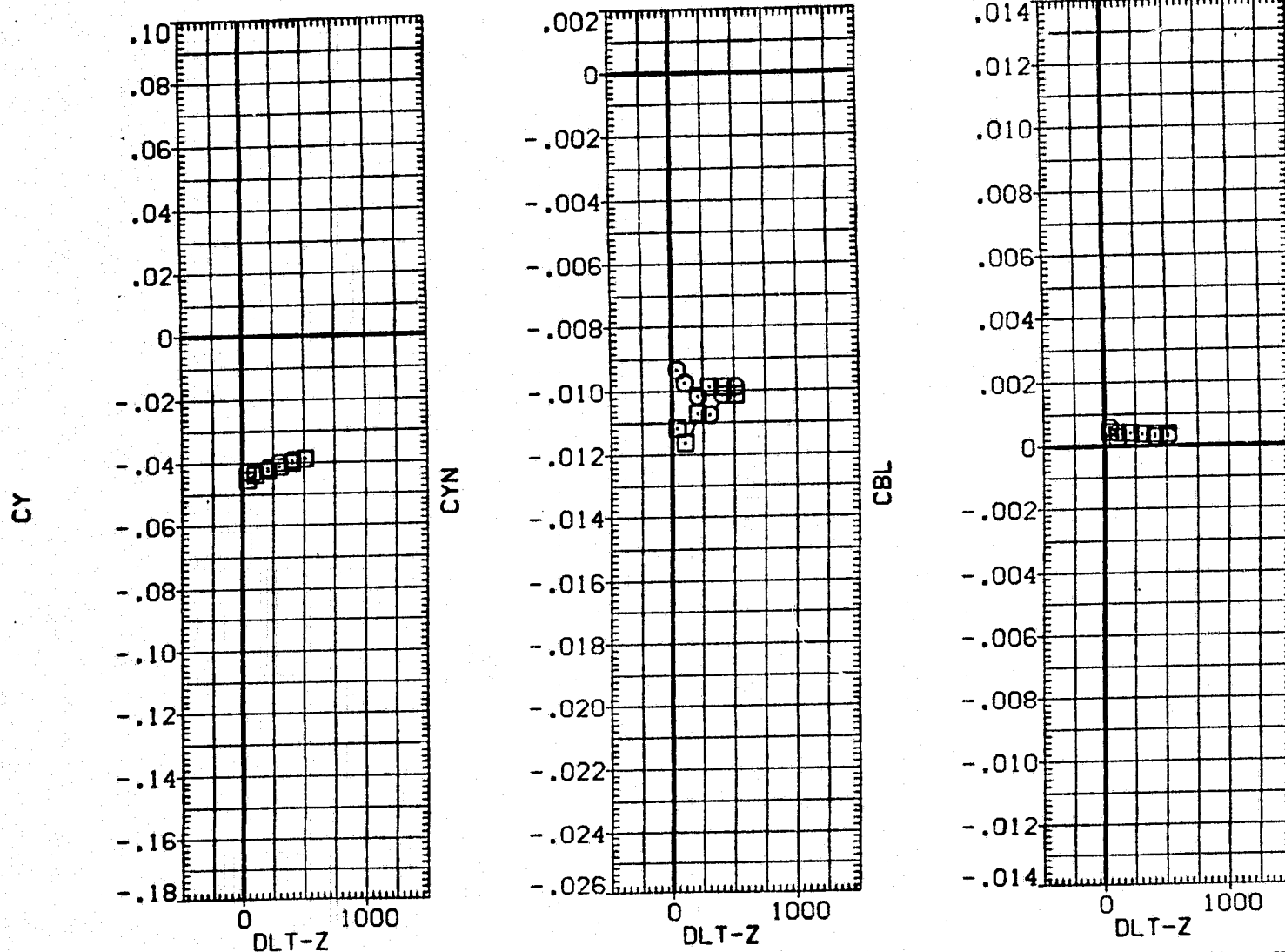


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR309)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	60.000	ALPHA	-10.000
○	.476	BETA	.000	DLTALF	-10.000
□	400.460	DLTBTA	3.000	MACH	5.930
		AILRON	15.000	ELEVON	.000
		GRID	10.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

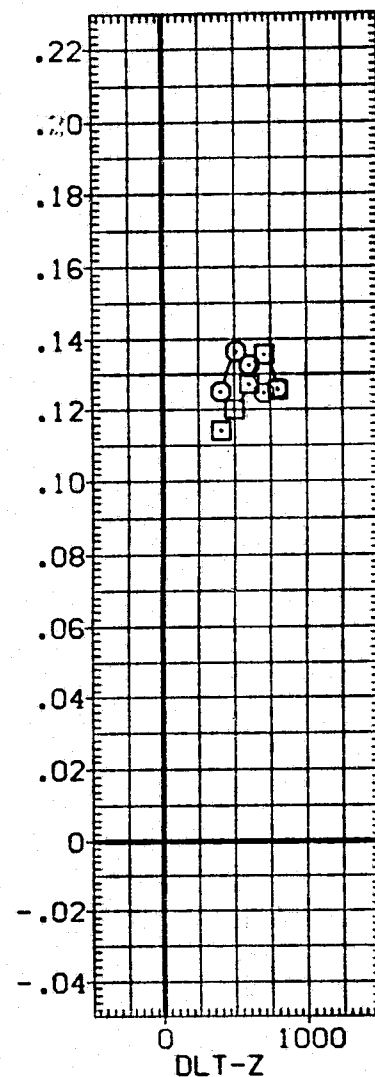
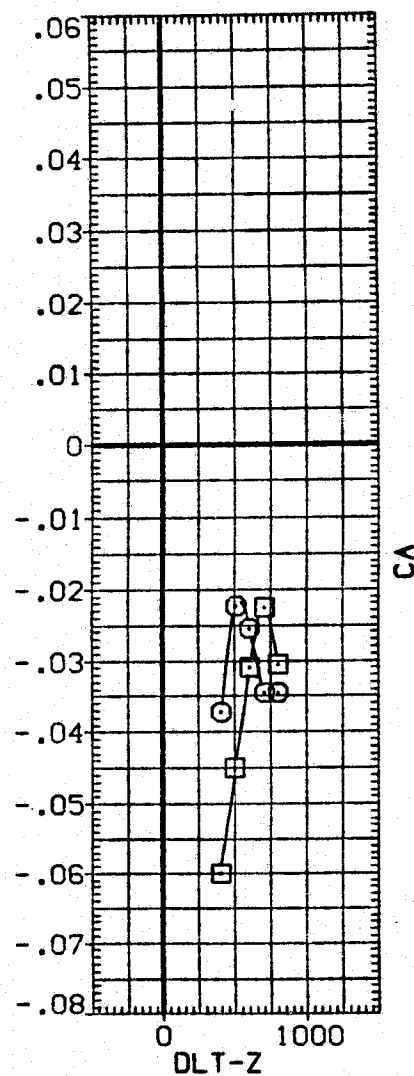
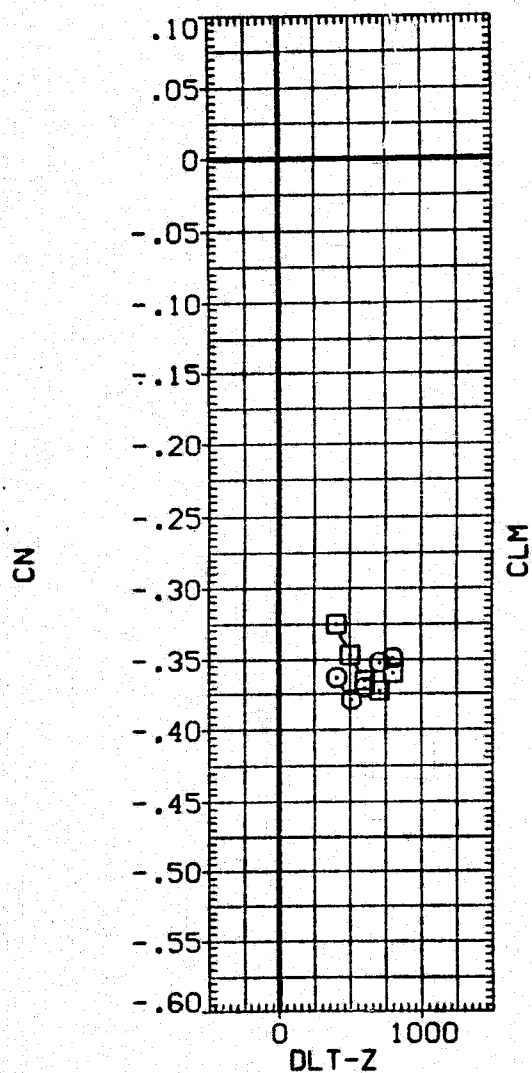


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR309)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.476		60.000	-10.000
□	400.460	BETA	.000	-10.000
		DLTBTA	3.000	MACH
		AILRON	15.000	ELEVON
		GRID	10.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

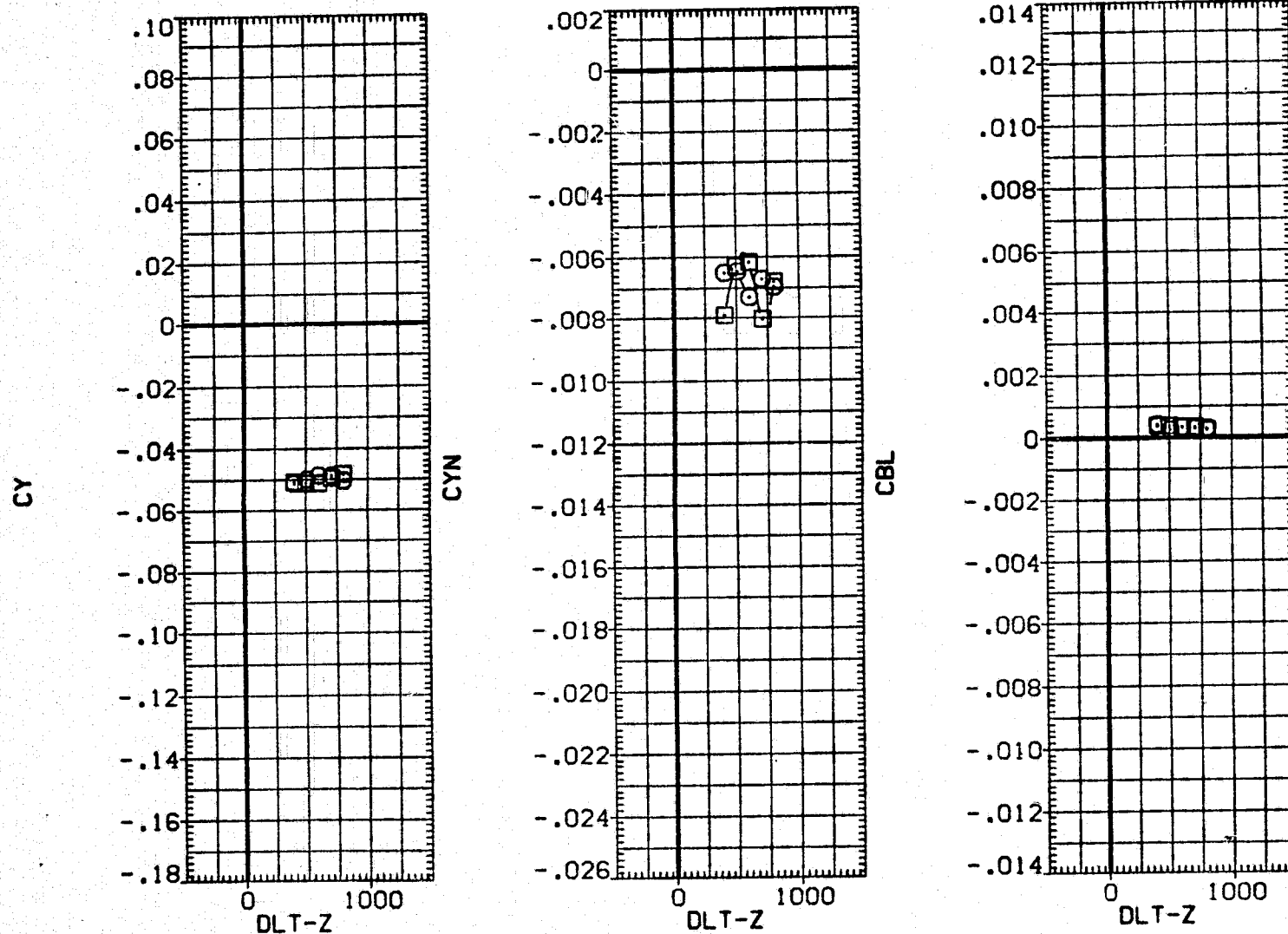


FIGURE 36 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=5.93, AILERON= 15)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR335)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.442	BETA	60.000	ALPHA .000
□	200.540	DLTBT	.000	DLTALF .000
		AILRON	.000	MACH 7.980
		GRID	16.000	ELEVON .000
				PO 420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

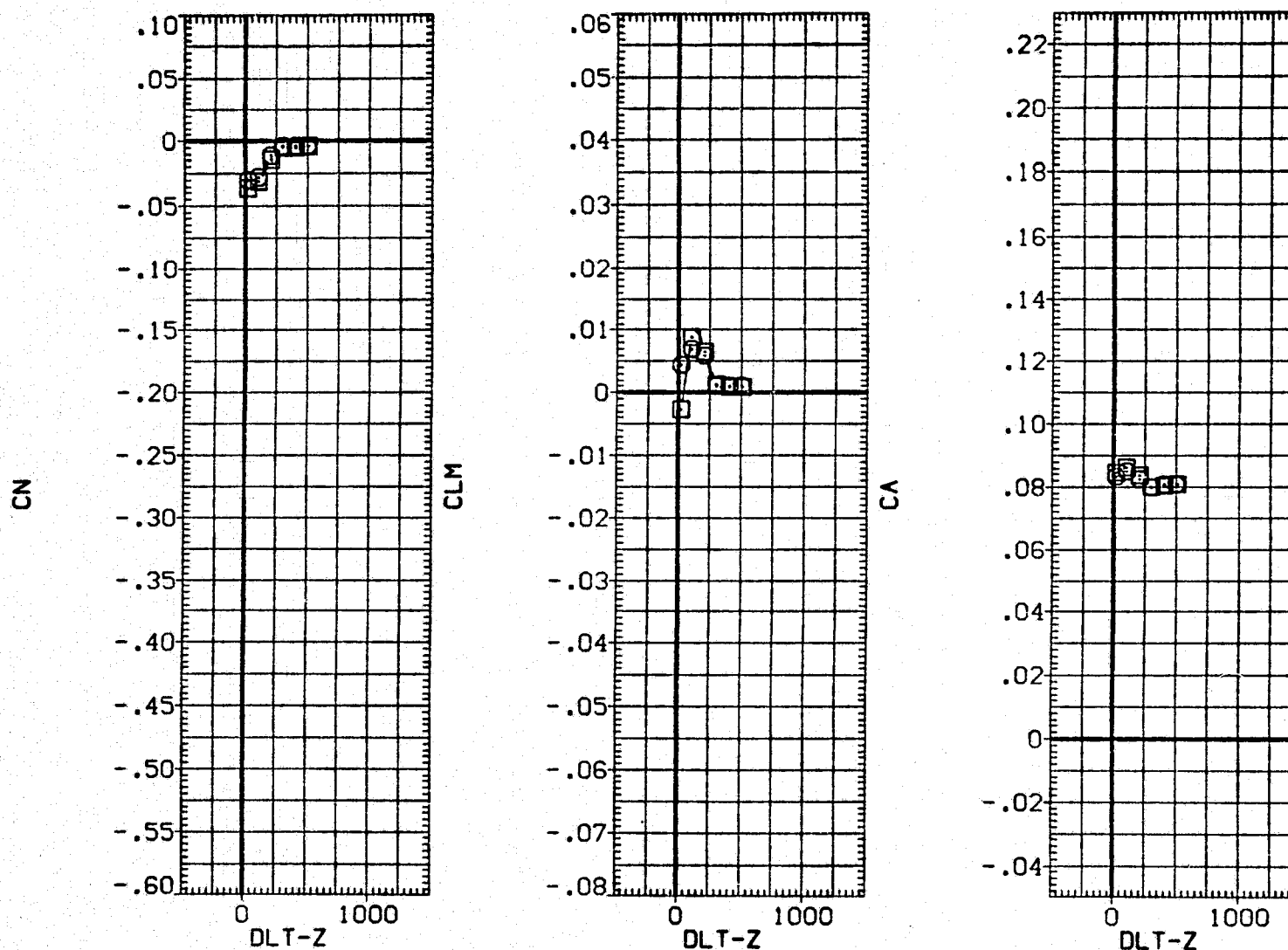


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR335)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.442	BETA	60.000	.000	
□	200.540	DLTBTA	.000	.000	
		AILRON	.000	7.980	
		GRID	16.000	ELEVON	.000
				PD	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

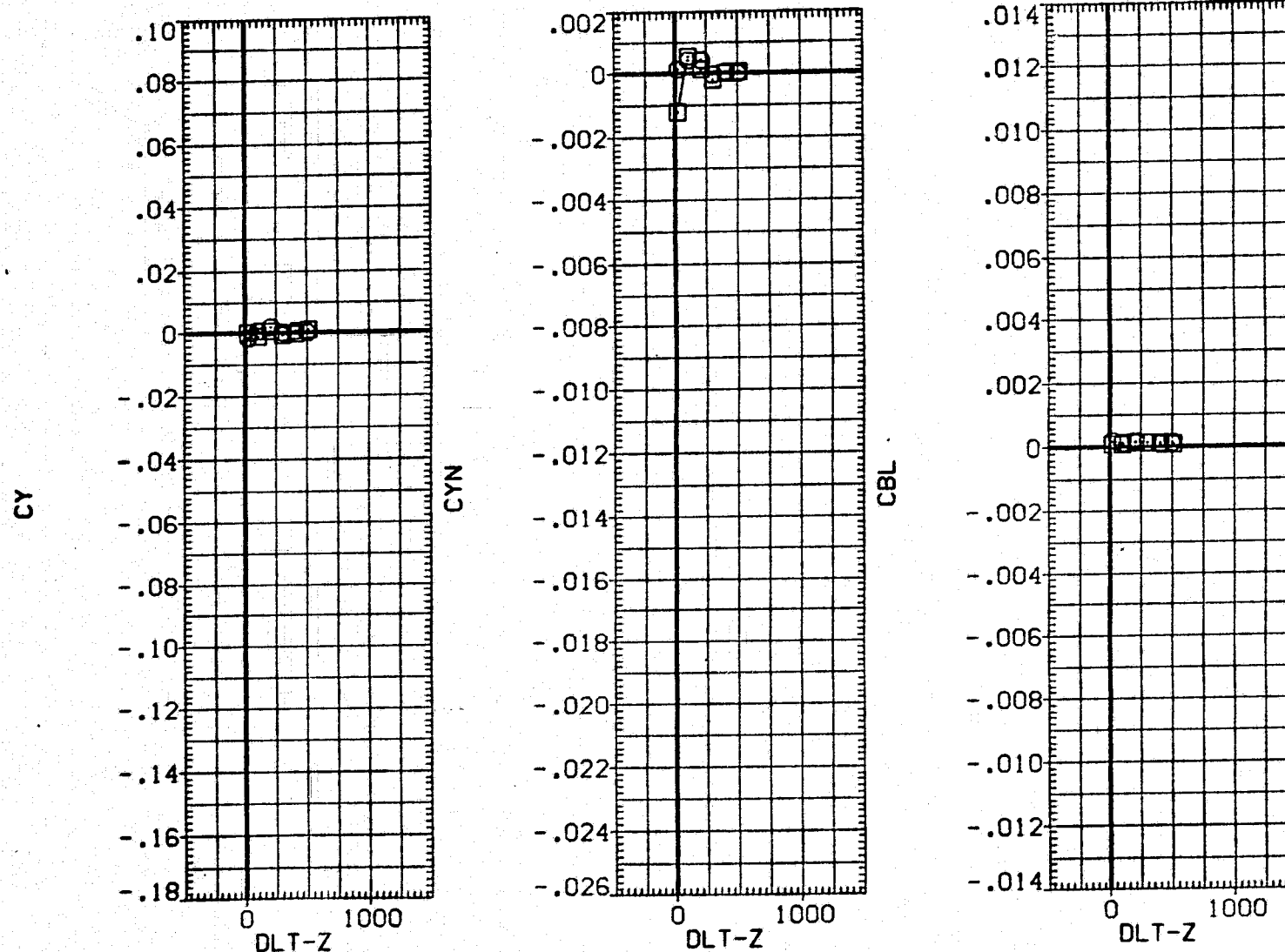


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR336)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLTALF	
○	.505	60.000	.000	.000	-10.000	
□	200.390	.000	.000	7.980	.000	
◇	400.470	.000	.000	420.000		
		DLTBT	AILRON	GRID		
		16.000				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

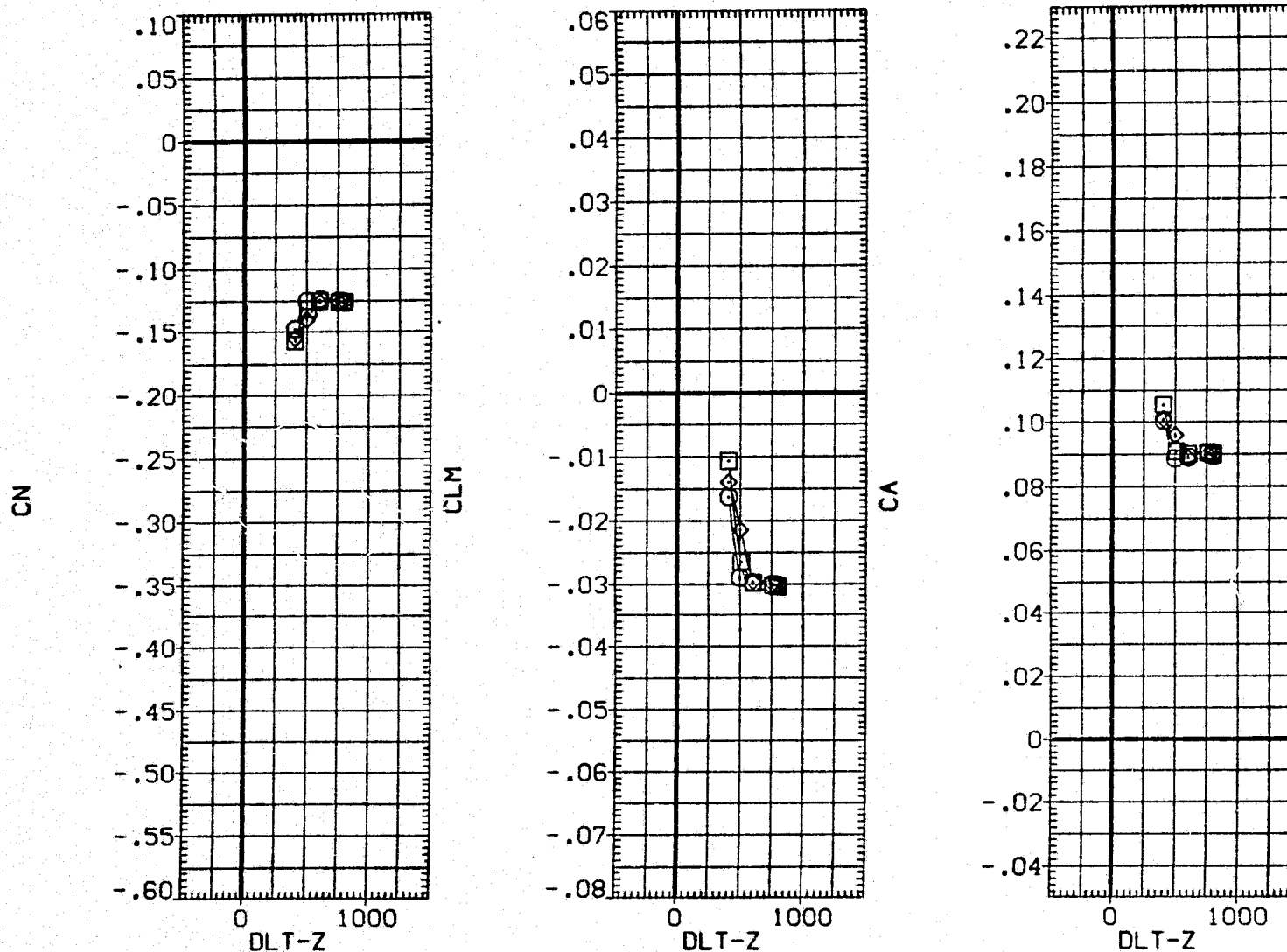


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR336)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.505	60.000	ALPHA	.000
□	200.390	BETA	.000	DLTALF -10.000
◇	400.470	DLTBTA	.000	MACH 7.980
		AILRON	.000	ELEVON .000
		GRID	16.000	PO 420.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

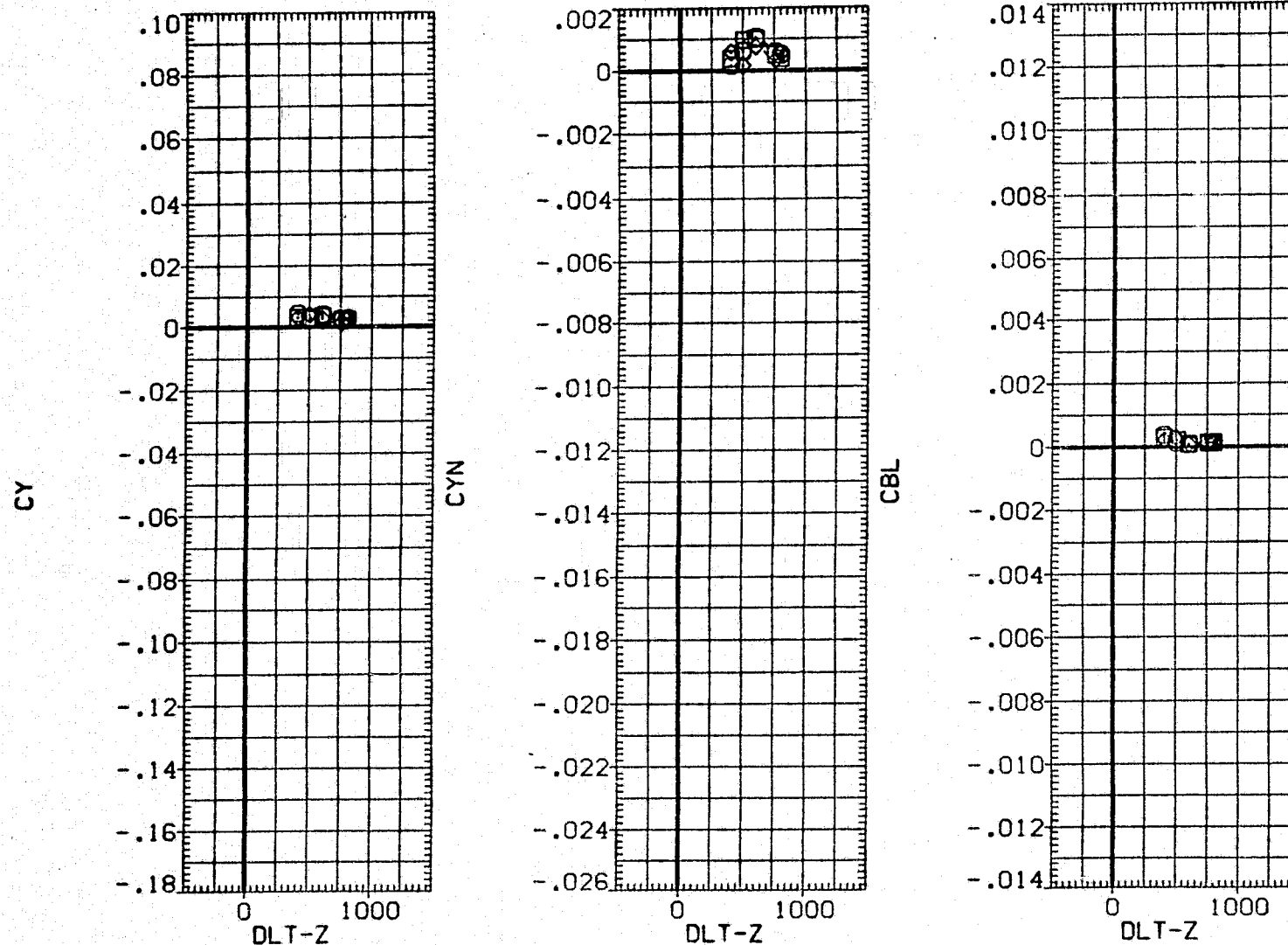


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR338)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.443	BETA	60.000	.000	
□	200.460	DLTBTA	.000	DLTALF	-20.000
◇	400.280	AILRON	.000	MACH	7.980
		GRID	16.000	ELEVON	.000
				PO	420.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

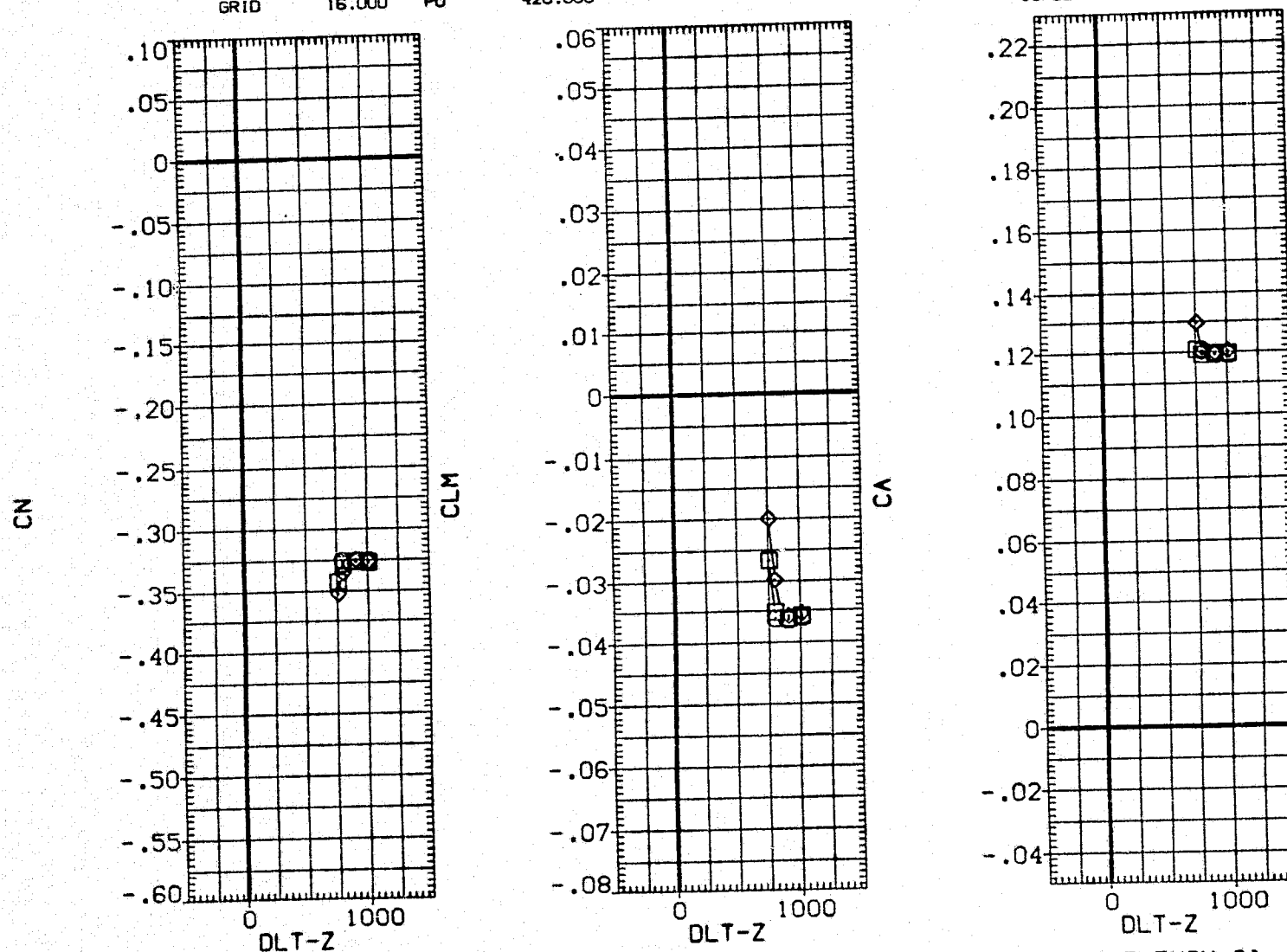


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR338)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.443	BETA	60.000	.000
□	200.460	DLTBTA	.000	DLTALF -20.000
◇	400.280	AILRON	.000	MACH 7.980
		GRID	16.000	ELEVON .000
				P0 420.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

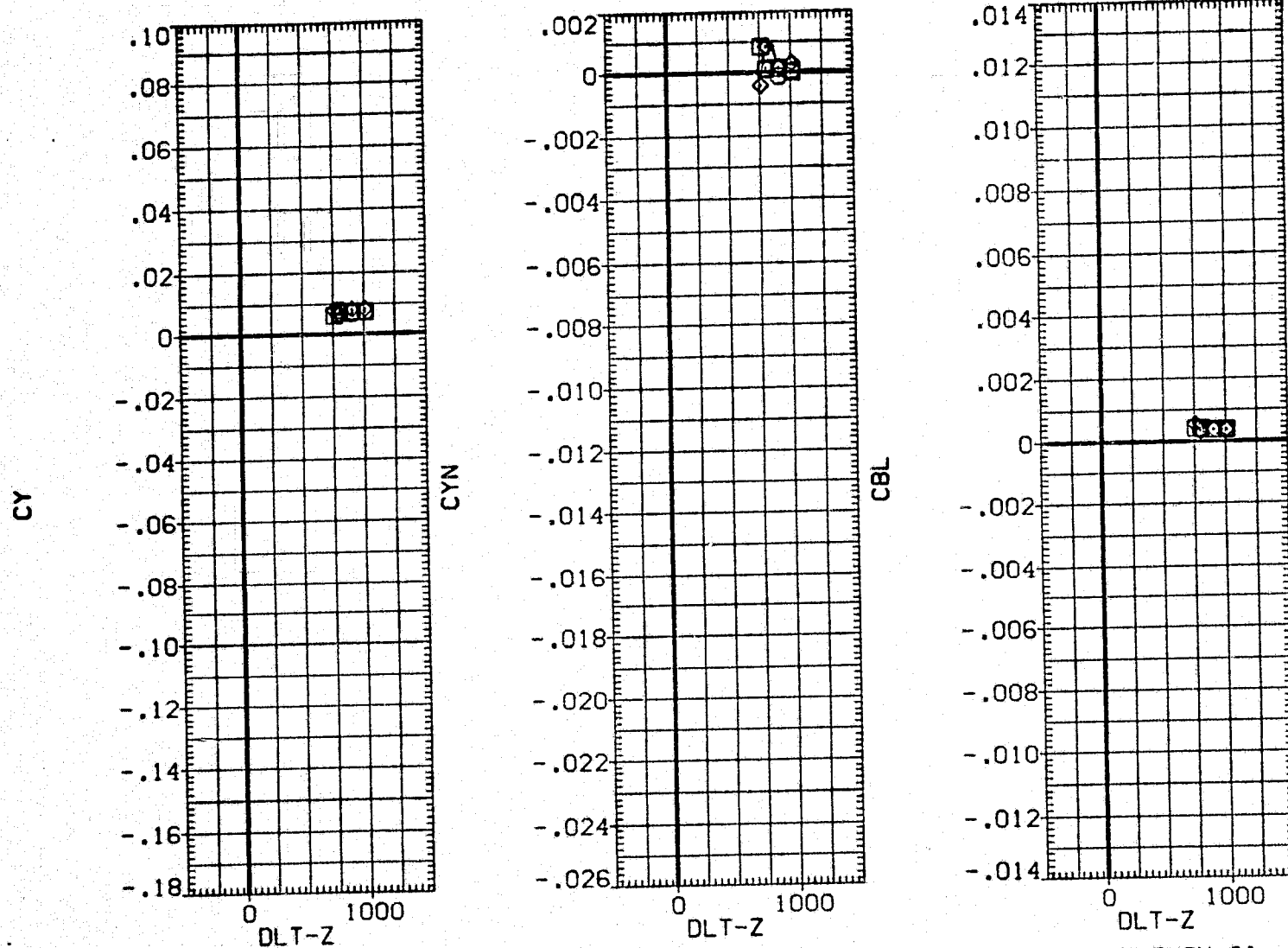


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR339)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.415	60.000	ALPHA	.000
□	200.480	.000	DLTALF	.000
		3.000	MACH	7.980
		.000	ELEVON	.000
		16.000	PG	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

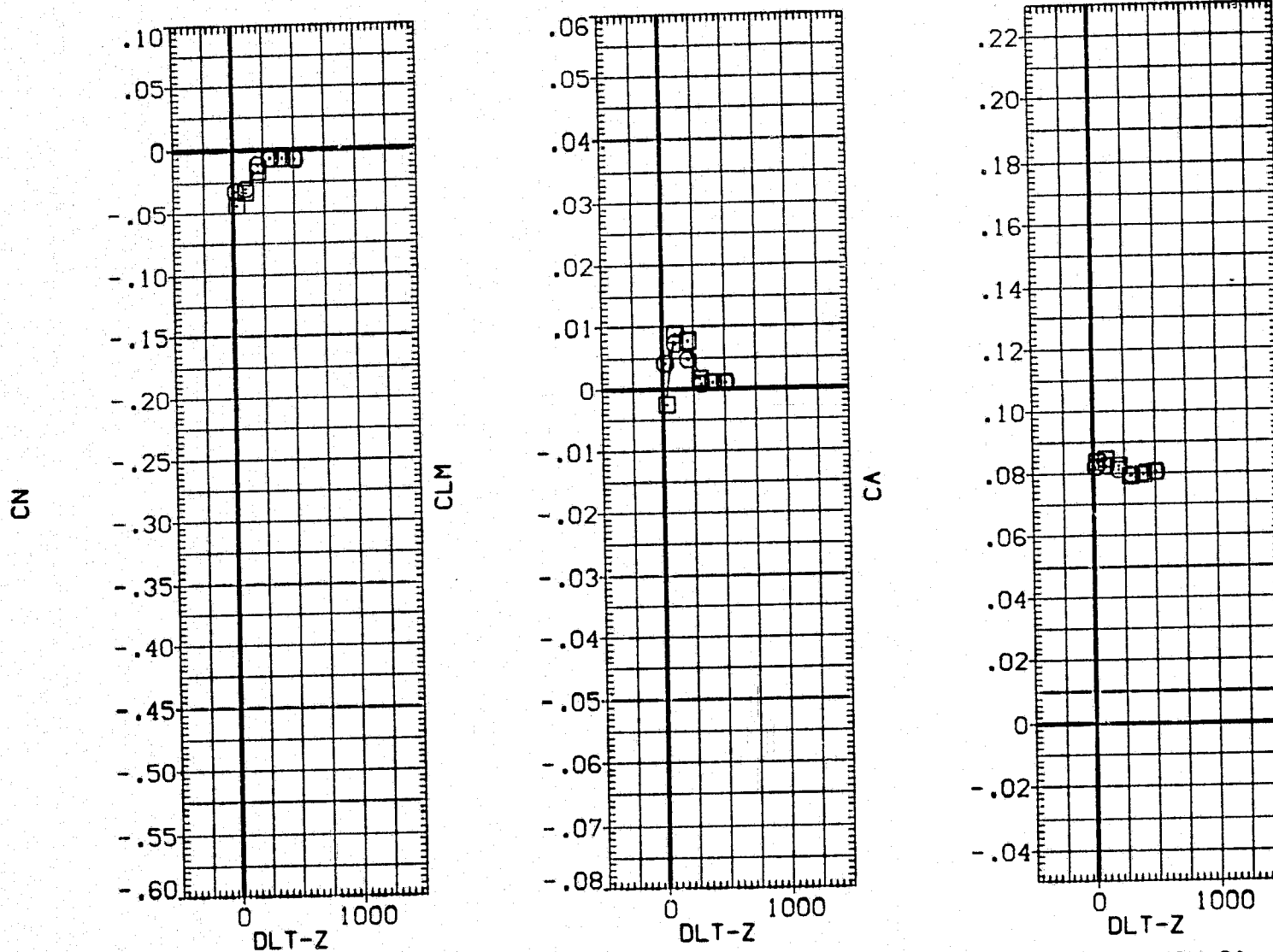


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR339)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
○	.415		60.000	ALPHA	.000
□	200.480	BETA	.000	DLTALF	.000
		DLTBTA	3.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	16.000	PG	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

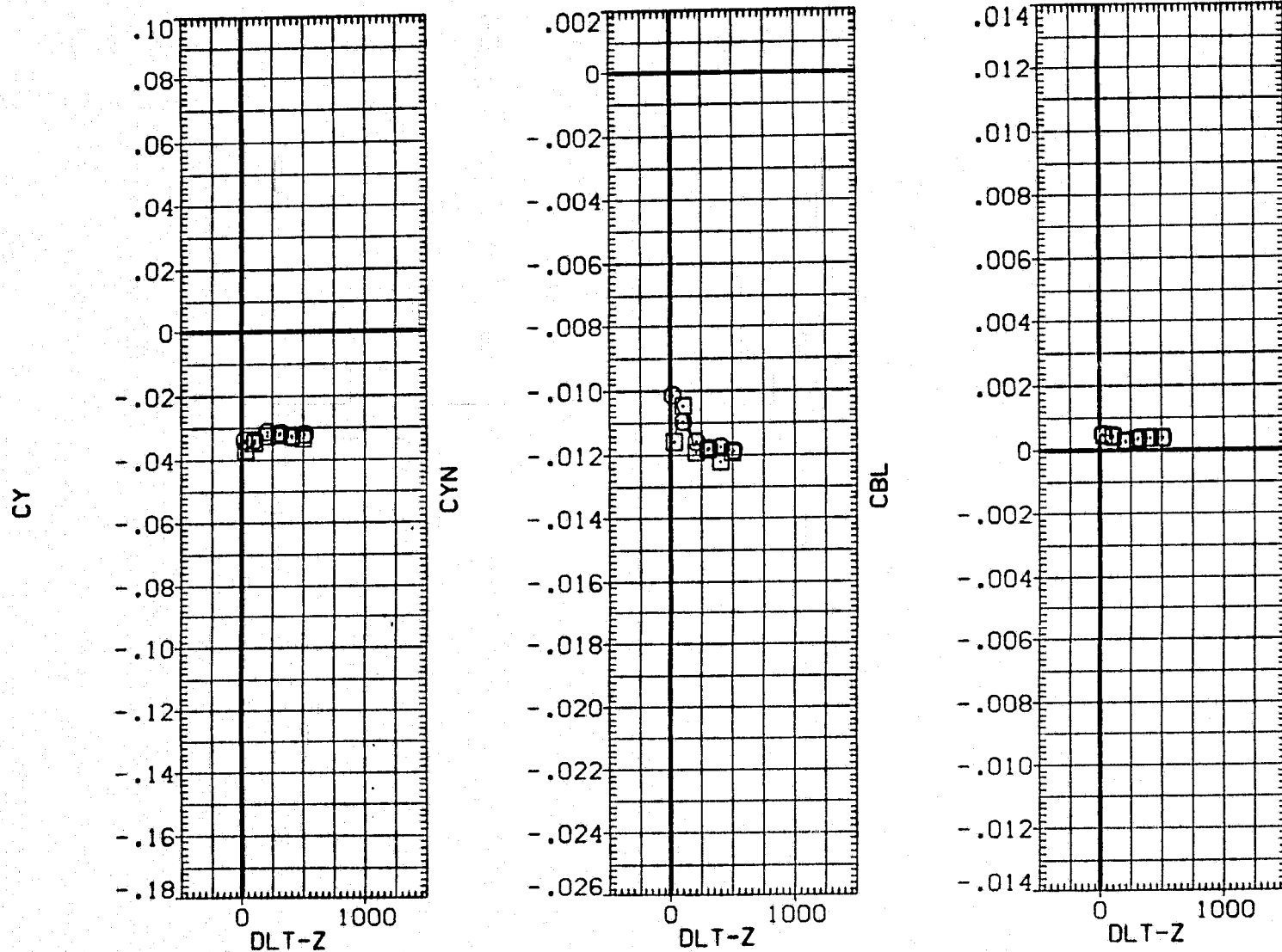


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR340)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.495		60.000	.000	
□	200.500	BETA	.000	DLTALF	-10.000
◇	400.490	DLTBTA	3.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	16.000	P0	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

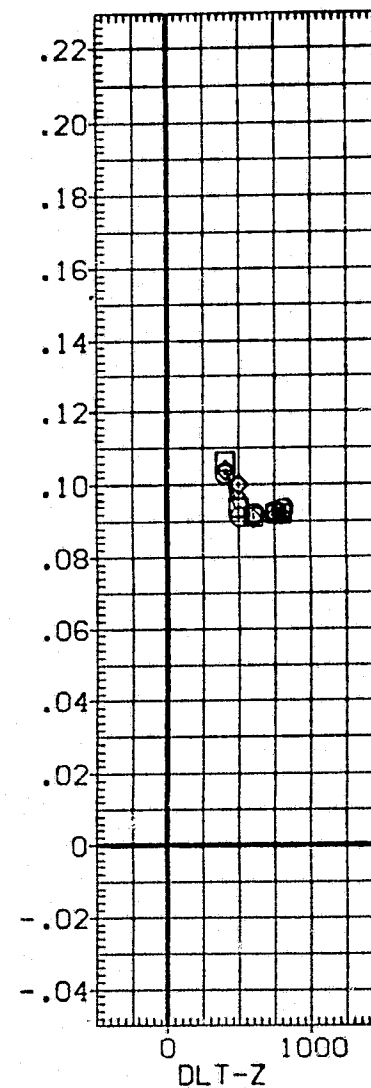
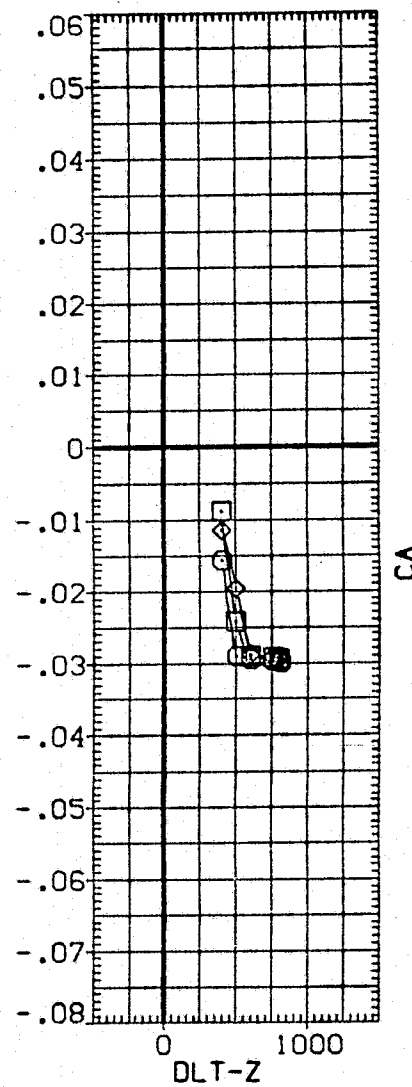
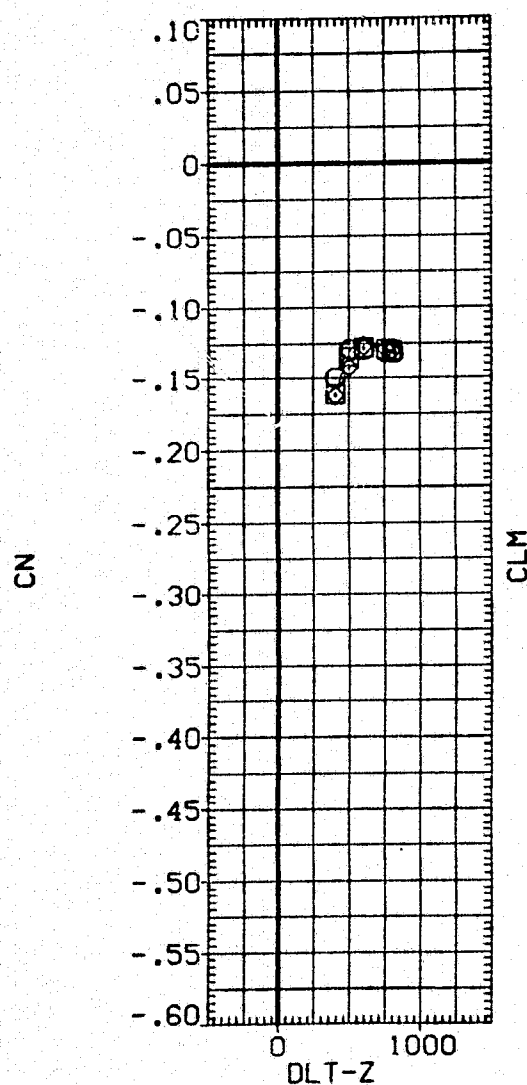


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR340)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.495	DLT-Y	60.000	ALPHA	.000
	200.500	BETA	.000	DLTALF	-10.000
	400.490	DLTBTA	3.000	MACH	7.980
		AILRON	.000	ELEVON	.000
	GRID	16.000	PO	420.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

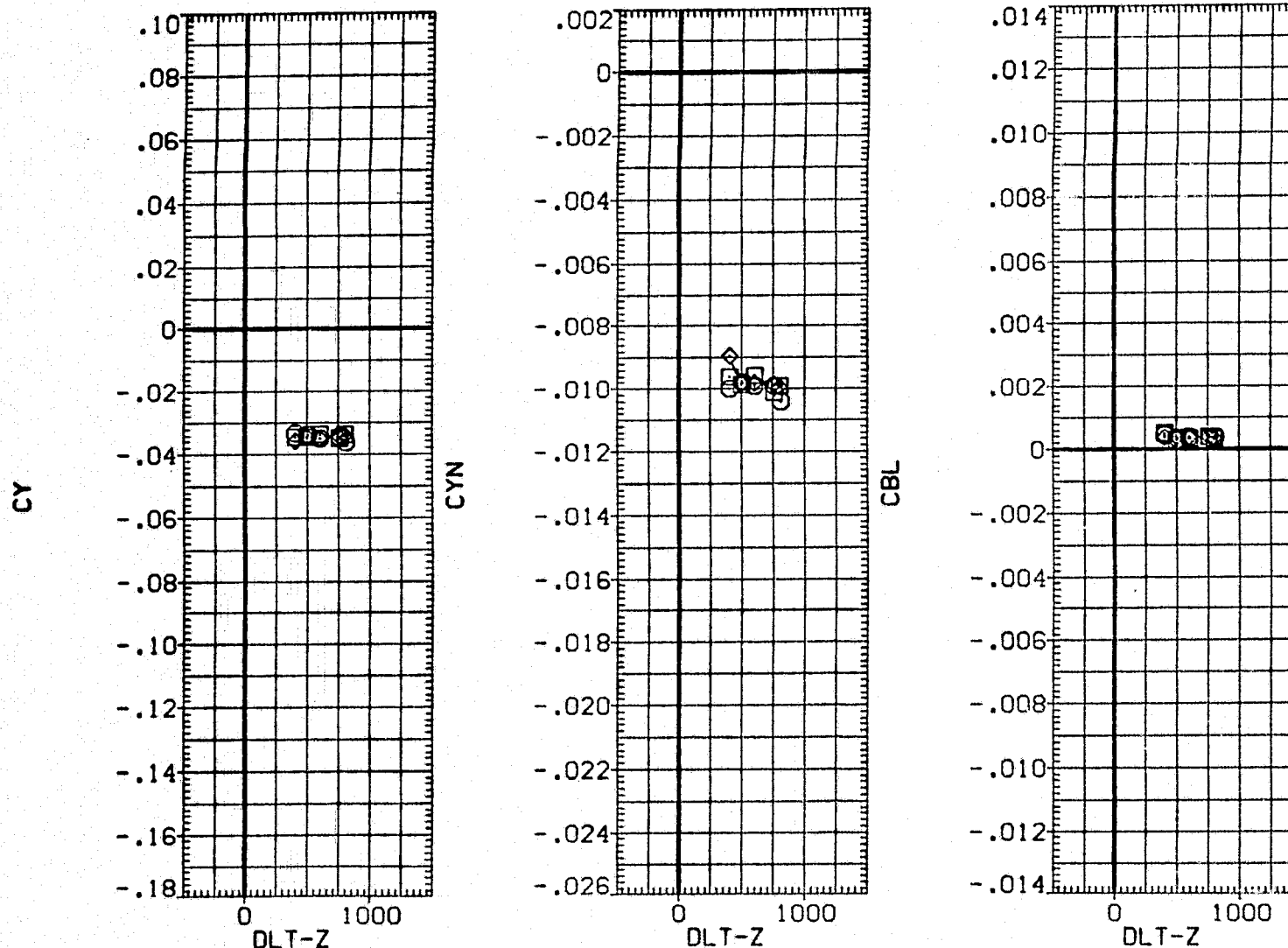


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR342)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
◇	.450	60.000	ALPHA	.000
□	200.280	.000	DLTALF	-20.000
◇	400.290	3.000	MACH	7.980
		.000	ELEVON	.000
		16.000	PG	420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

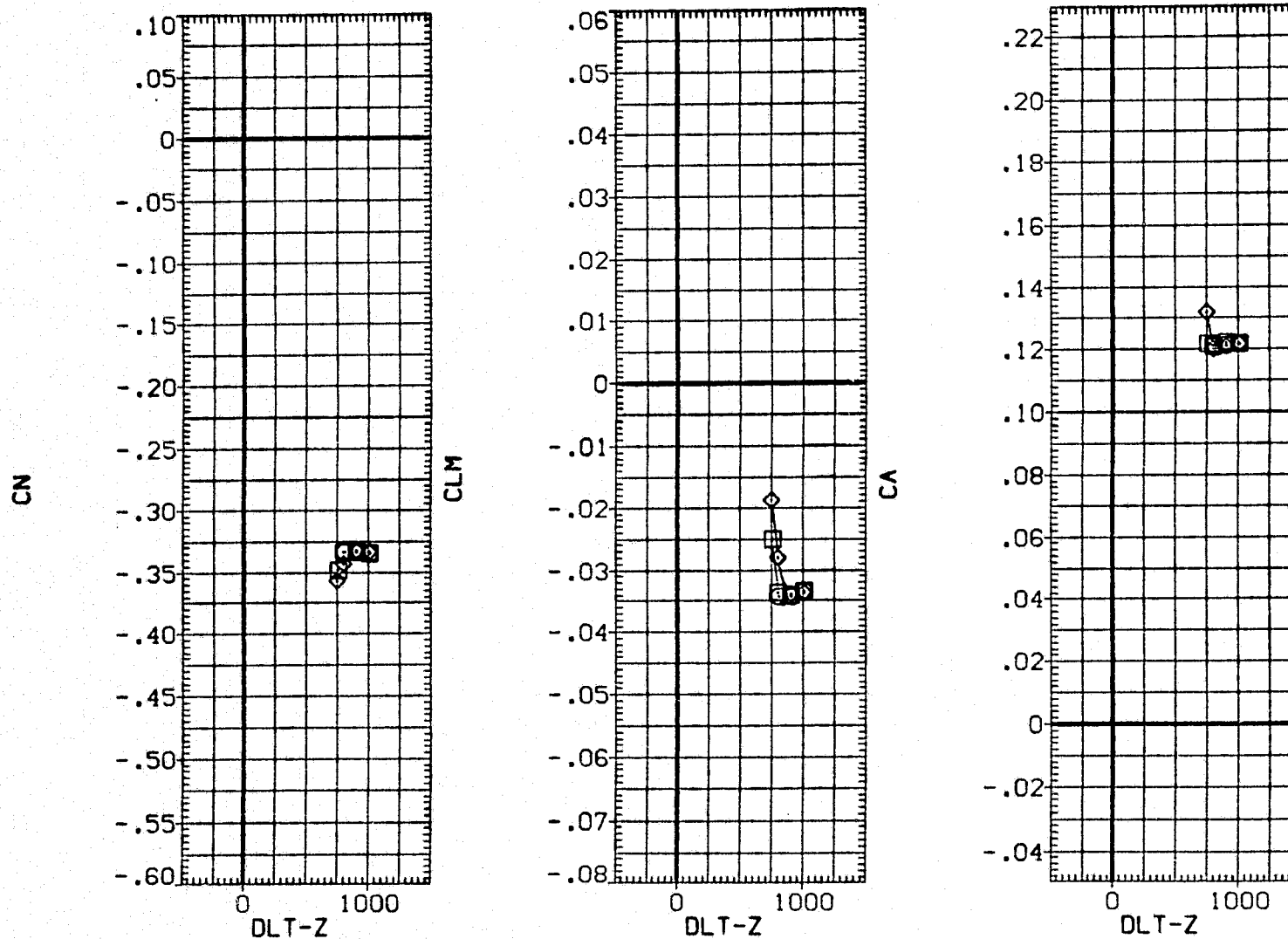


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR342)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.450	60.000	ALPHA	.000
□	200.280	BETA	.000	DLTALF -20.000
◇	400.290	DLTBTA	3.000	MACH 7.980
		AILRON	.000	ELEVON .000
		GRID	16.000	PG 420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

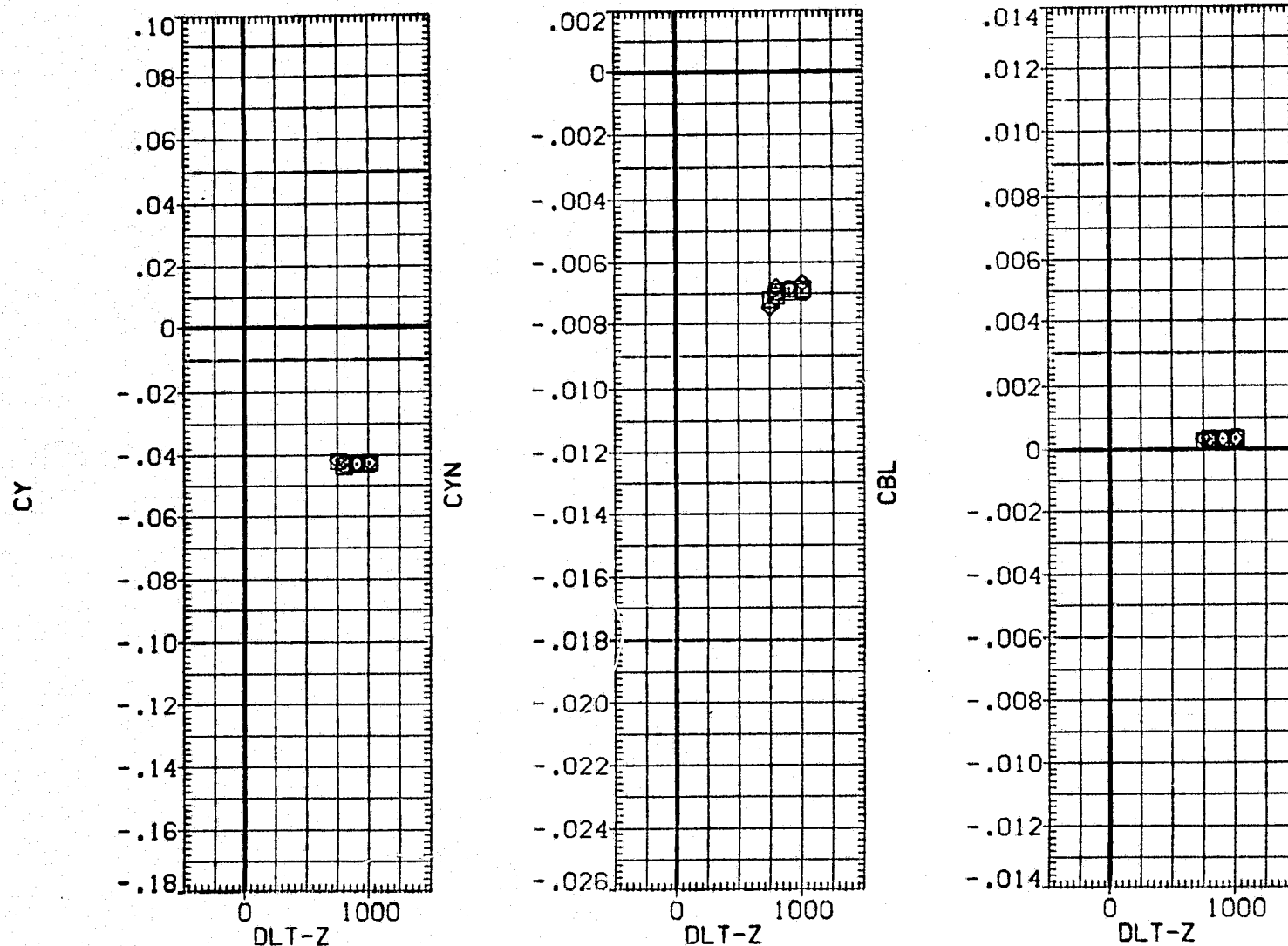


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR345)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.500	DLT-Y	60.000	ALPHA
□	200.430	BETA	3.000	DLTALF
		DLTBTA	.000	MACH
		AILRON	.000	ELEVON
		GRID	17.000	PG
				420.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

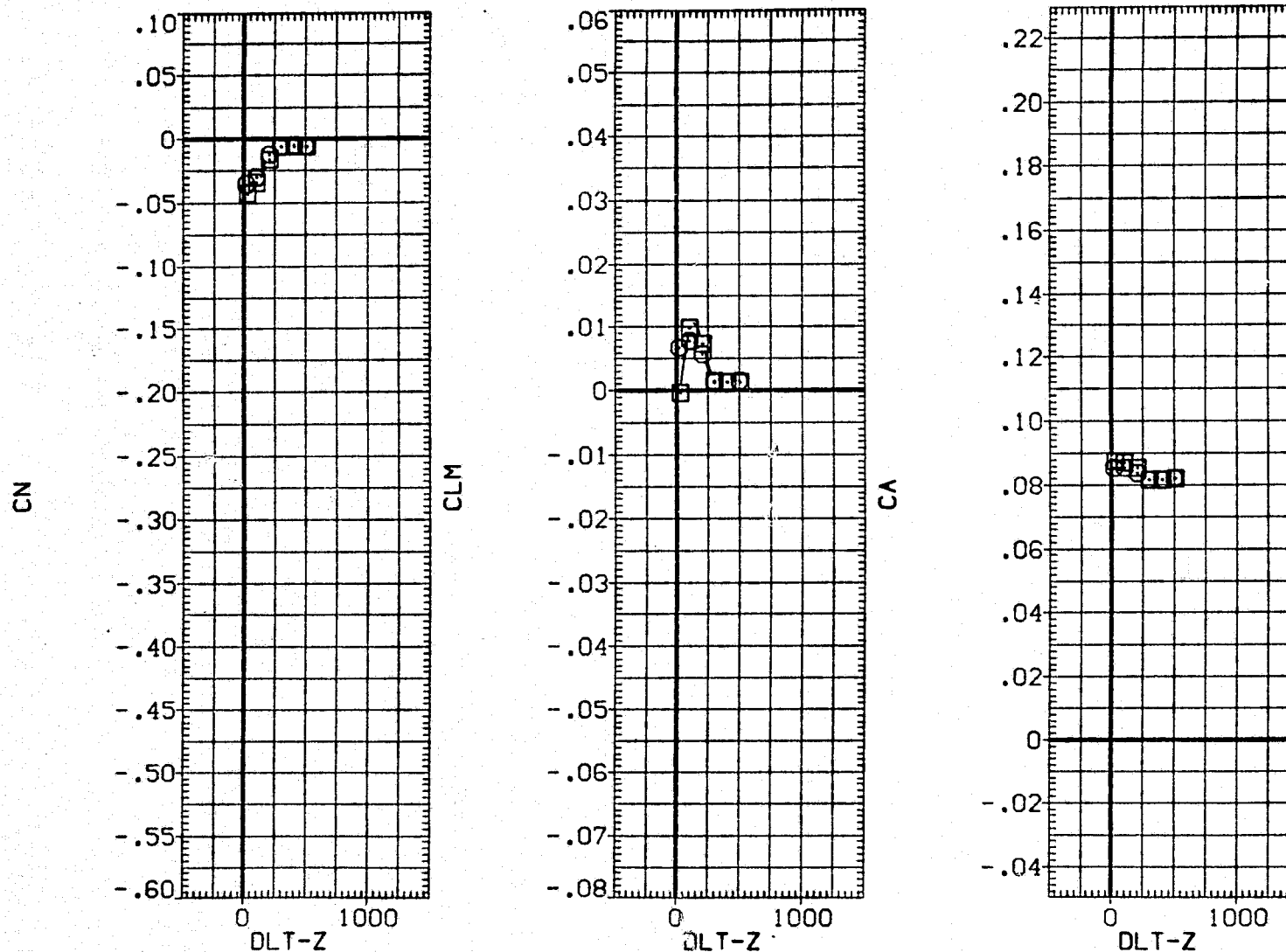


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR345)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.500	60.000	BETA	3.000	DLTALF
□	200.430	.000	DLTBTA	.000	MACH
		.000	AILRON	.000	ELEVON
		17.000	PG	420.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

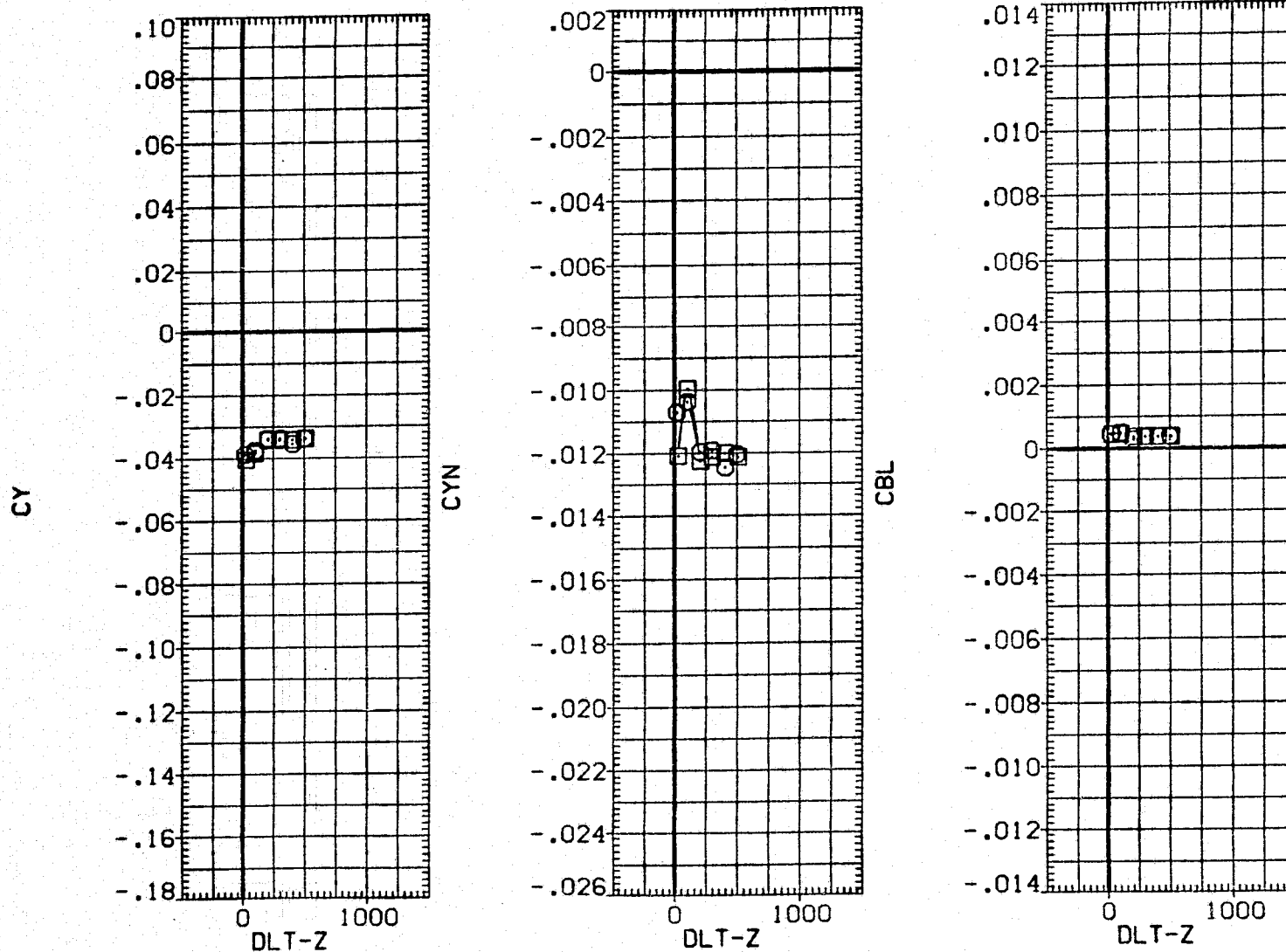


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR346)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.620		60.000	ALPHA .000
□	200.490	BETA	3.000	DLTALF -10.000
◇	400.470	DLTBTA	.000	MACH 7.980
		ATLRON	.000	ELEVON .000
		GRID	17.000	P0 420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

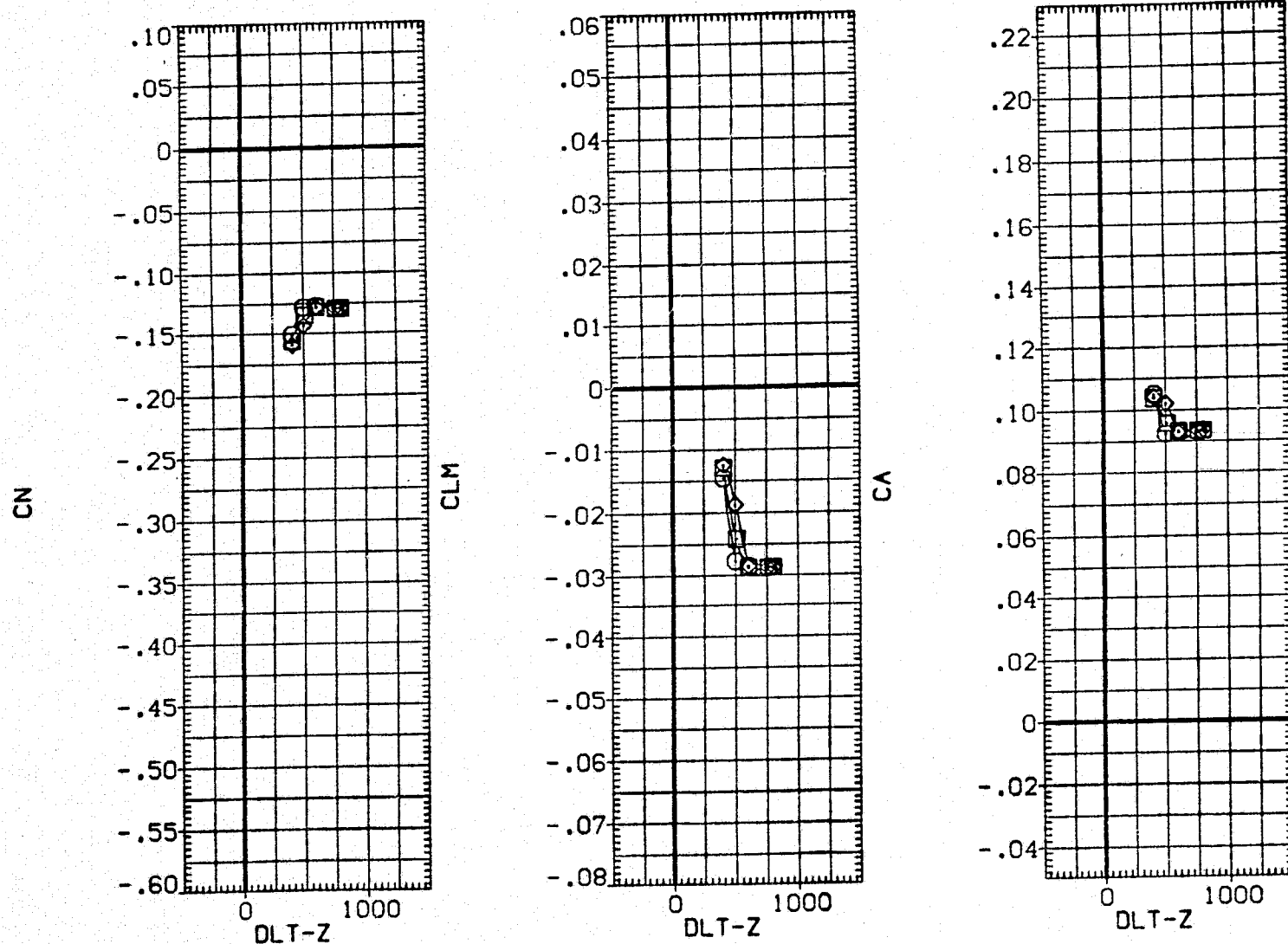


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR346)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.620	60.000	ALPHA	.000
□	200.490	BETA	3.000	DLTALF -10.000
◇	400.470	DLTBTA	.000	MACH 7.980
		AILRON	.000	ELEVON .000
		GRID	17.000	PG 420.000

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

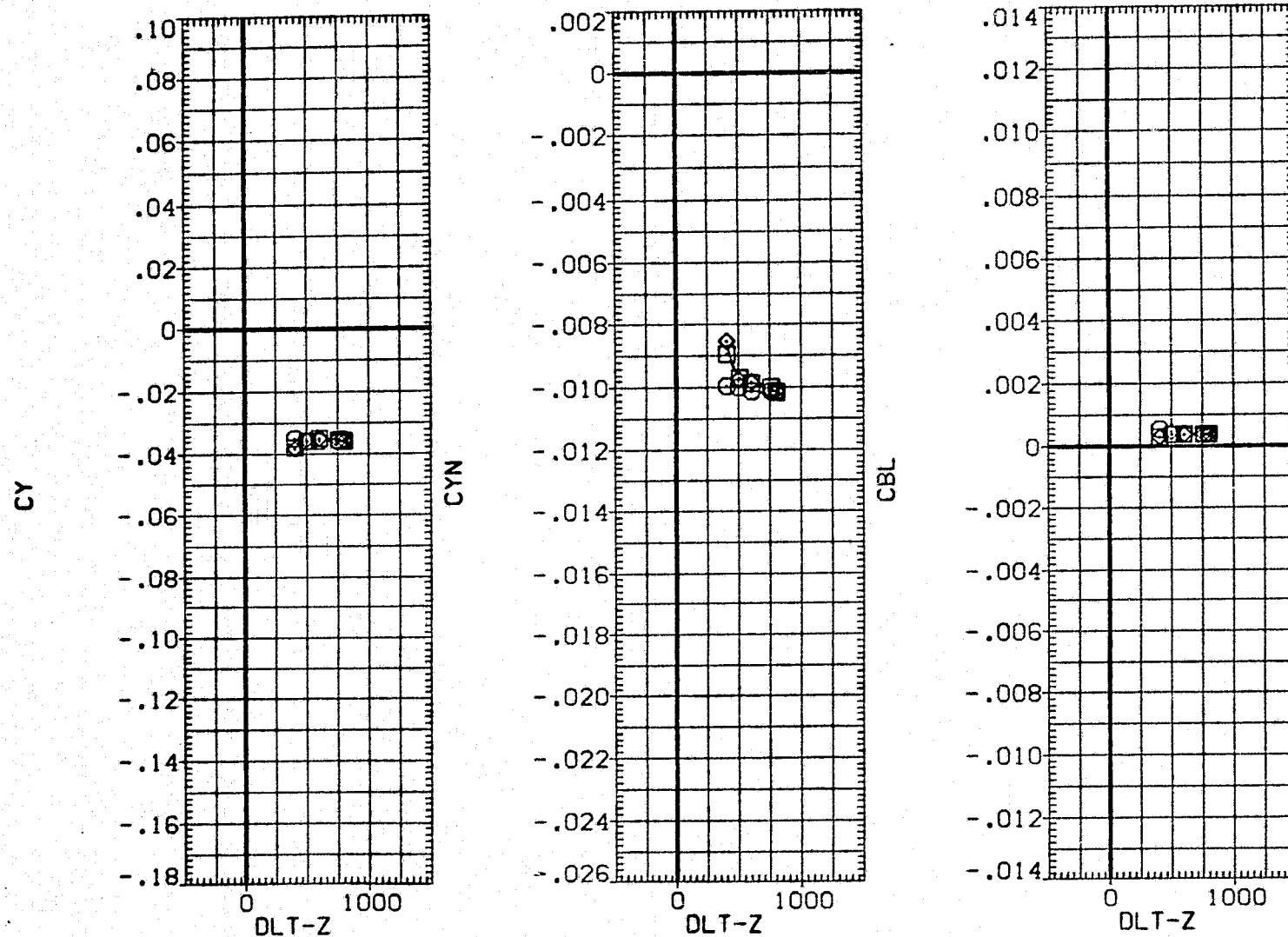


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR348)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.397	60.000	DLTALF	.000
□	200.420	3.000	MACH	-20.000
◇	400.370	.000	ELEVON	7.980
		AILRON	P0	.000
		GRID		420.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

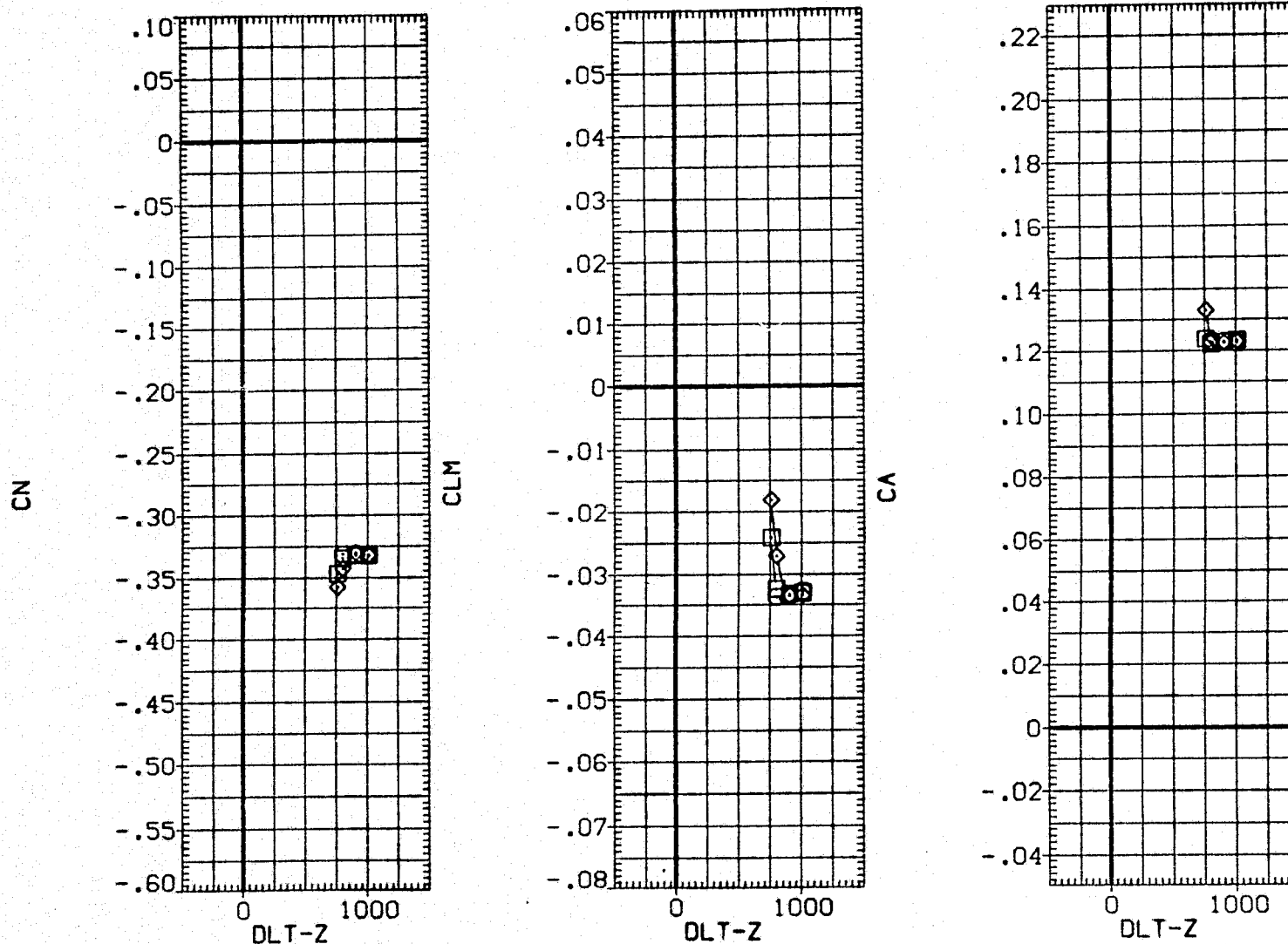


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR348)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	BETA	DLTBT	ALPHA	DLTALF
○	.397	200.420	60.000	.000	.000	-20.000
□	200.420	DLTBT	3.000	.000	MACH	7.980
◇	400.370	AILRON	.000	.000	ELEVON	.000
		GRID	17.000	P0	420.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

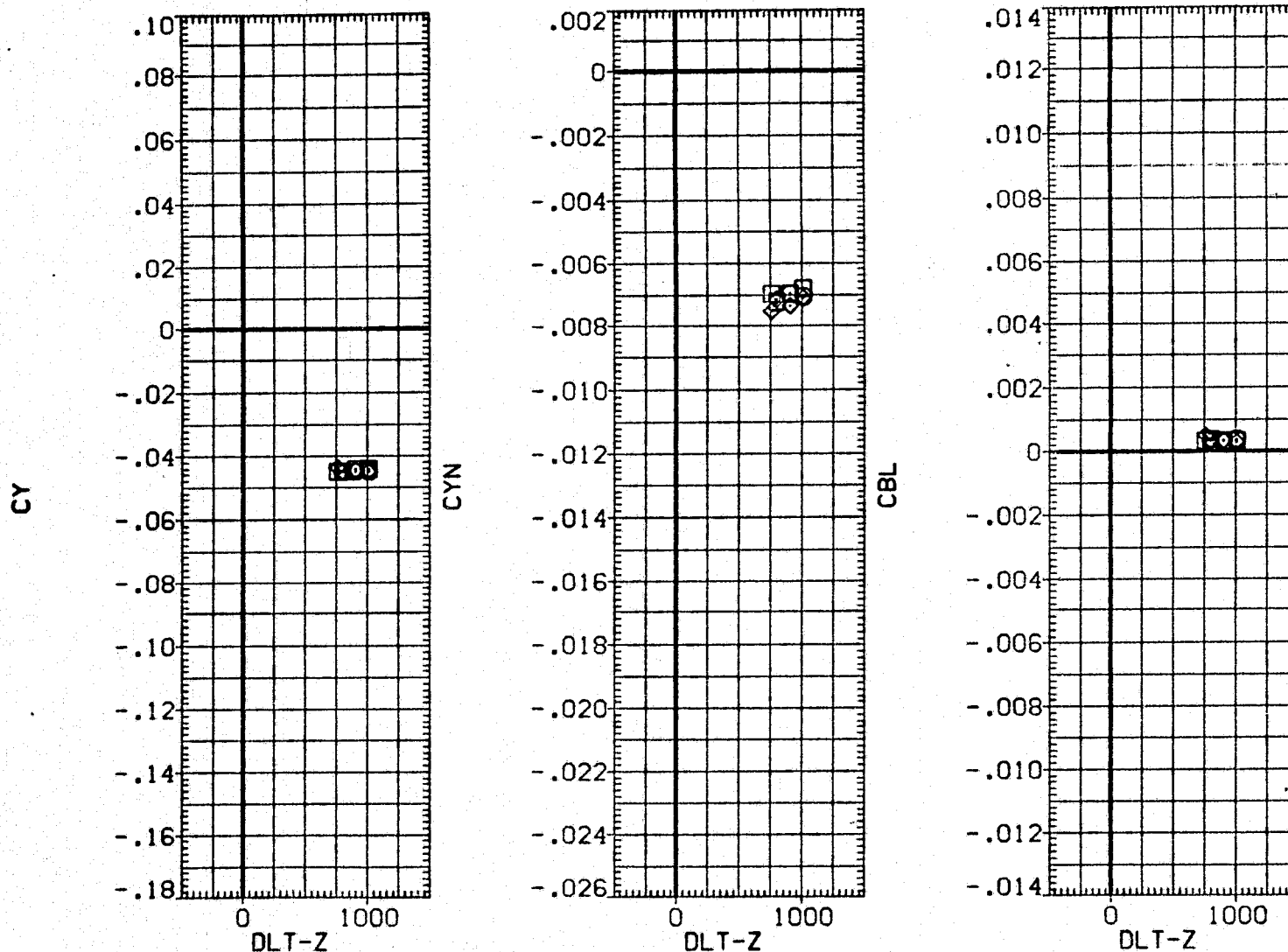


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR349)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	60.000	ALPHA	.000	
○	.571	BETA	3.000	DLTALF	.000	
□	200.490	DLTBTA	3.000	MACH	7.980	
		AILRON	.000	ELEVON	.000	
		GRID	17.000	PO	420.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

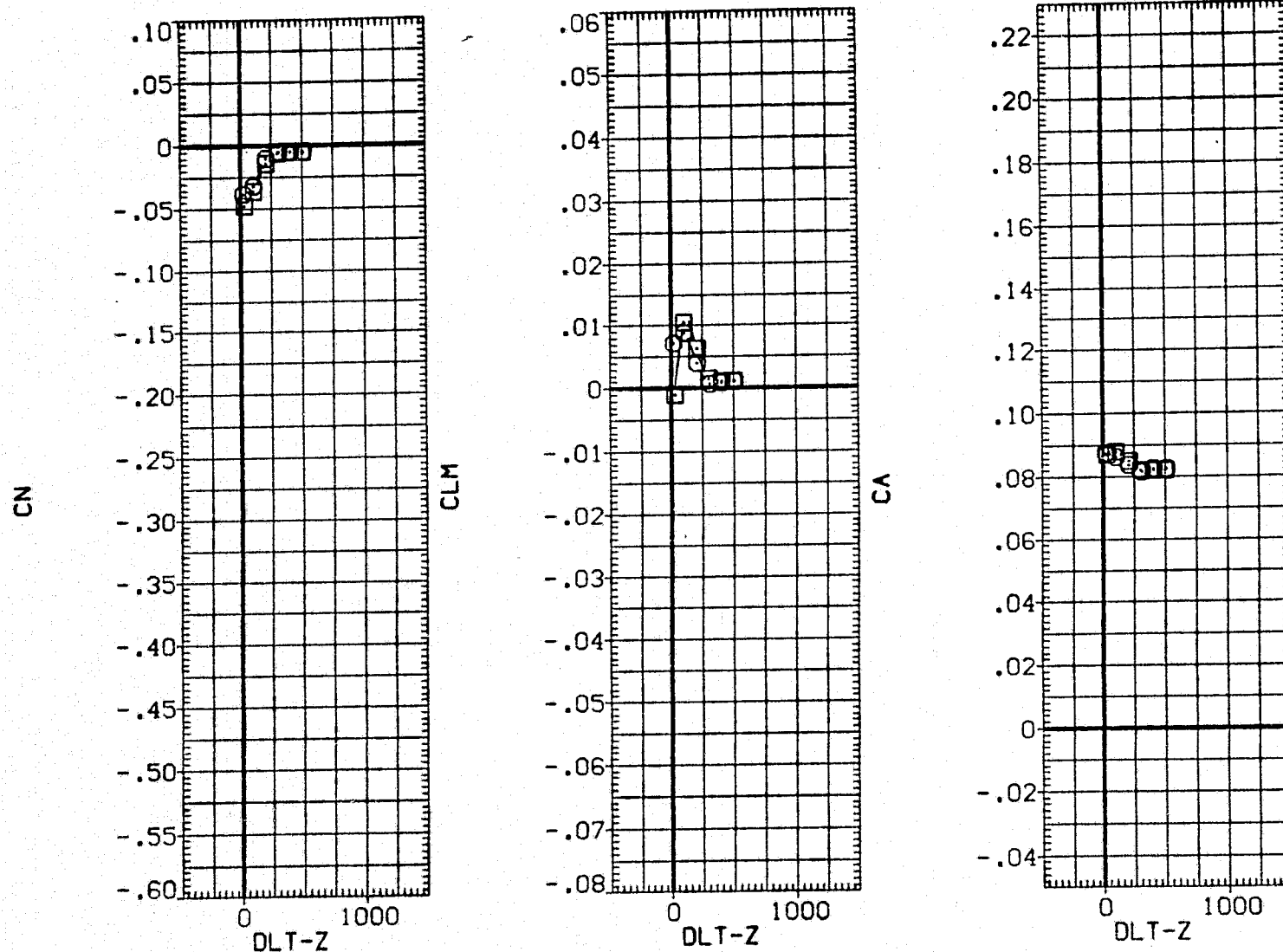


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR349)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
○	.571	BETA	60.000	ALPHA	.000
□	200.490	DLTBT	3.000	DLTALF	.000
		AILRON	.000	MACH	7.980
		GRID	17.000	ELEVON	.000
				PG	420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

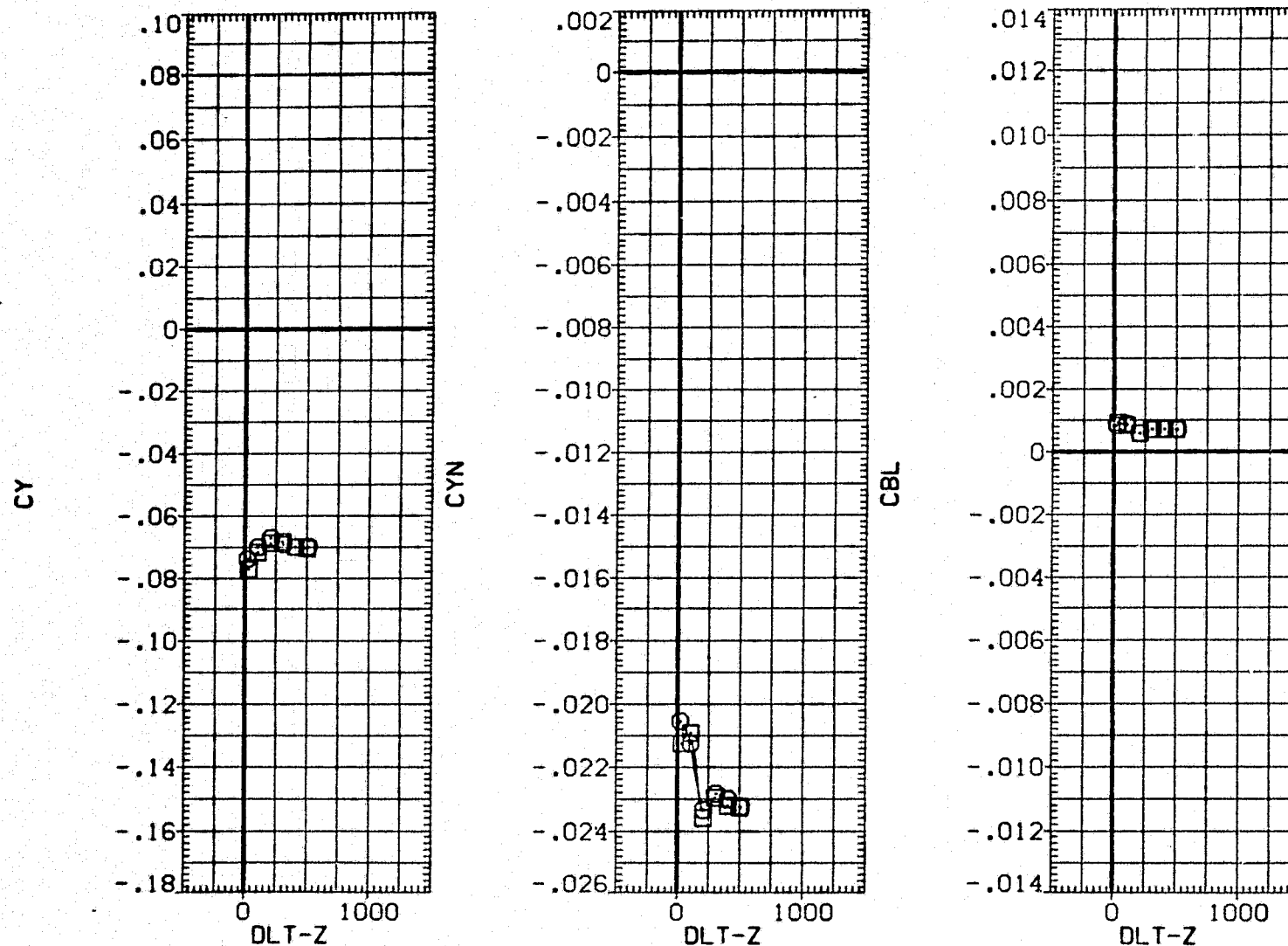


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR350)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.489		60.000	.000	
□	200.570	BETA	3.000	DLTALF	-10.000
◇	400.490	DLTBTA	3.000	MACH	7.980
		AIRLON	.000	ELEVON	.000
		GRID	17.000	PD	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

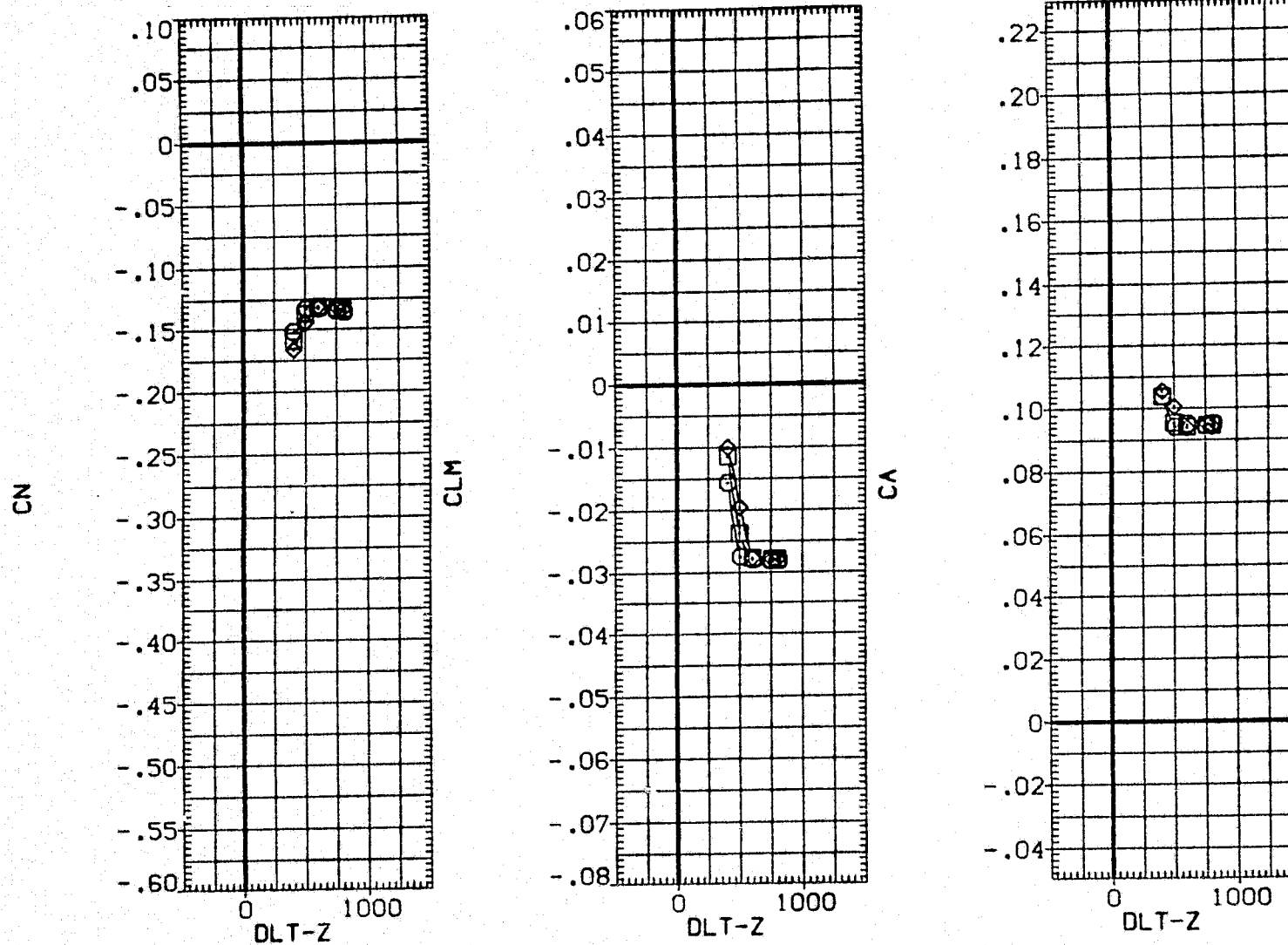


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR350)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
◇	.489	60.000	60.000	.000	
□	200.570	BETA	3.000	DLTALF	-10.000
◇	400.490	DLTBTA	3.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	17.000	PO	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

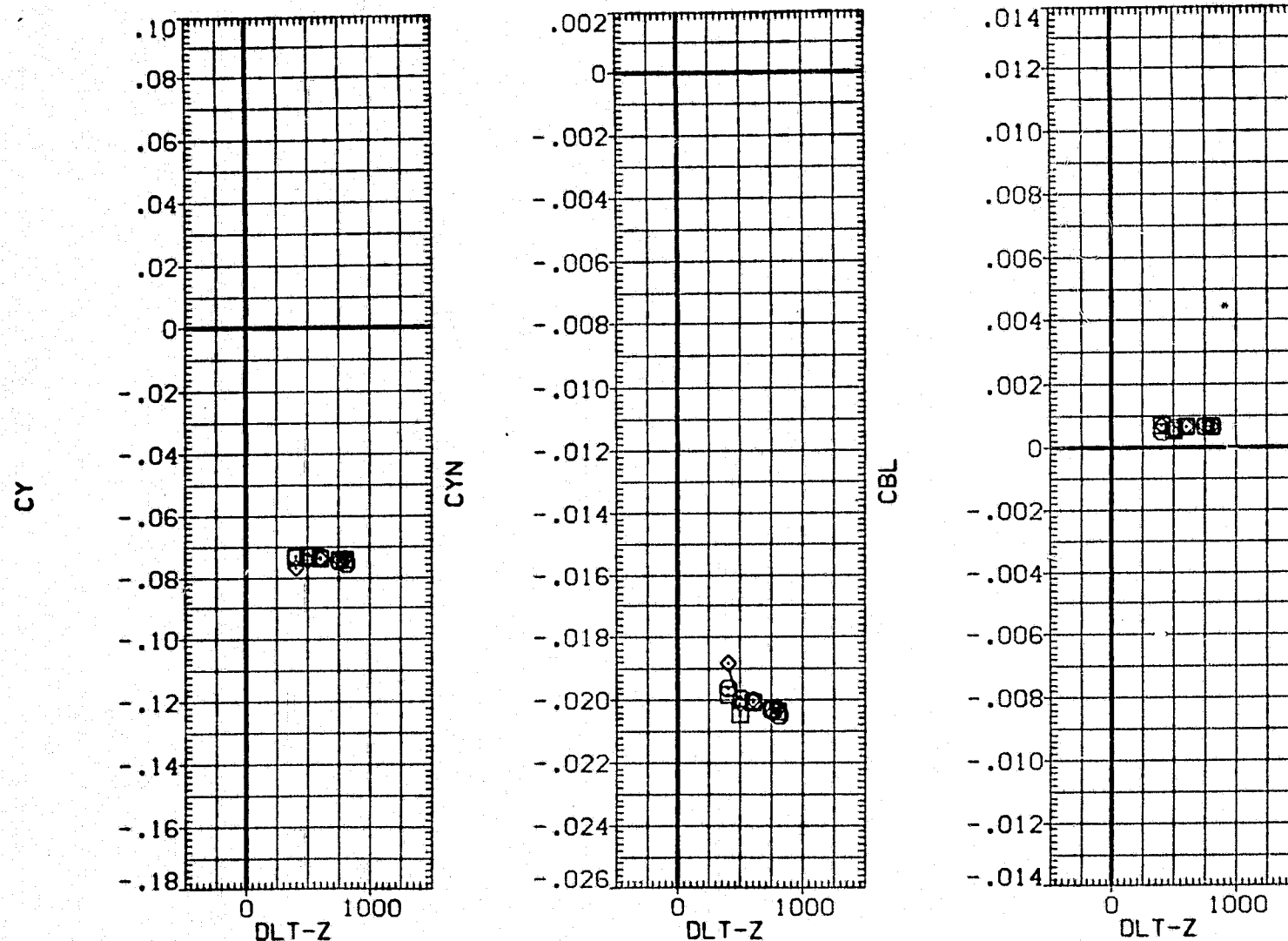


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR352)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES
○	.508	60.000	ALPHA .000
□	200.530	BETA 3.000	DLTALF -20.000
◇	400.410	DLTBTA 3.000	MACH 7.980
		AILRON .000	ELEVON .000
		GRID 17.000	PD 420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

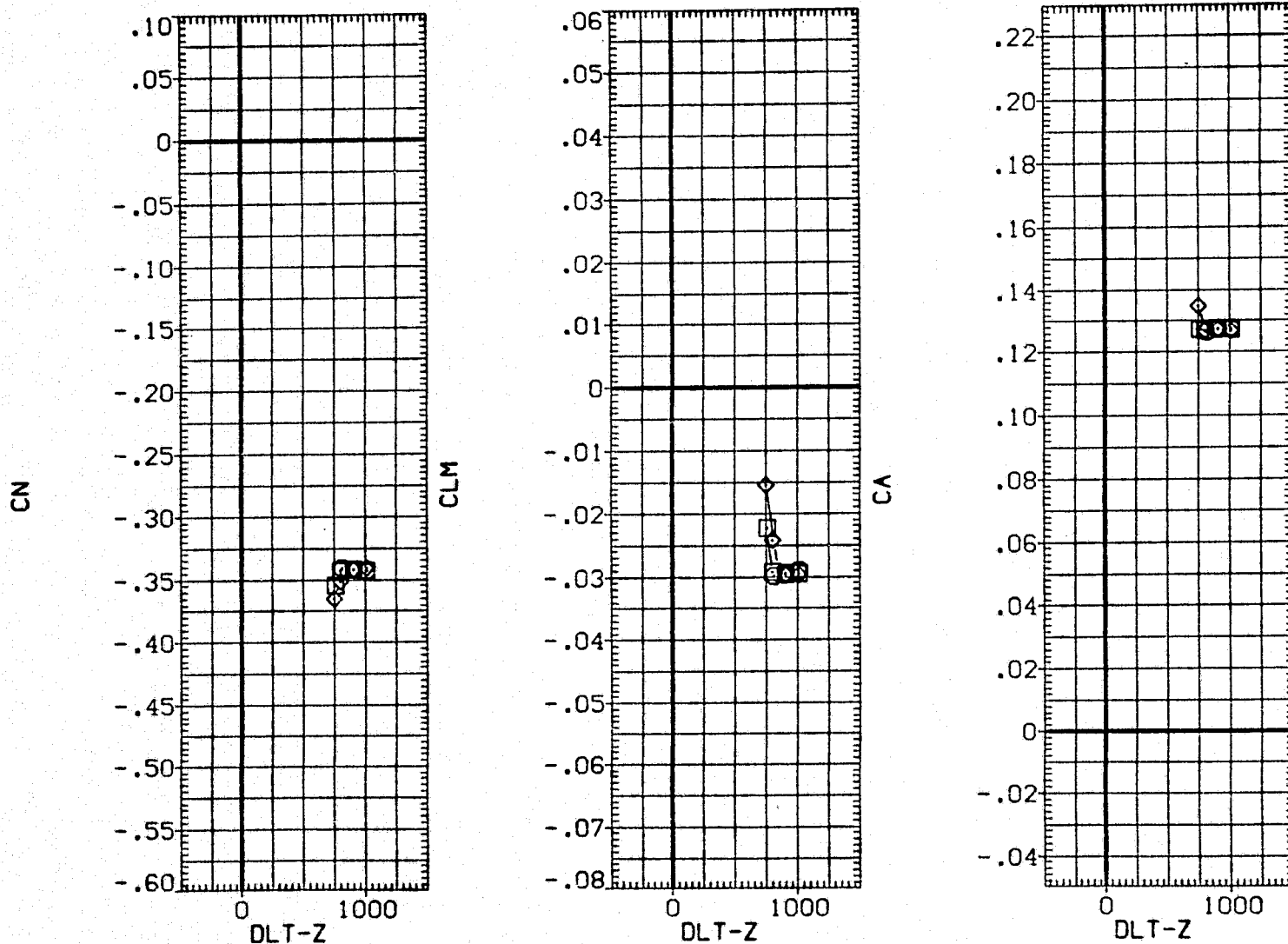


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR352)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.508	60.000	BETA	3.000	DLTALF
□	200.530	3.000	DLTBT	3.000	MACH
◇	400.410	.000	AILRON	.000	ELEVON
		GRID	17.000	PO	420.000

REFERENCE INFORMATION		
SREF	2630.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

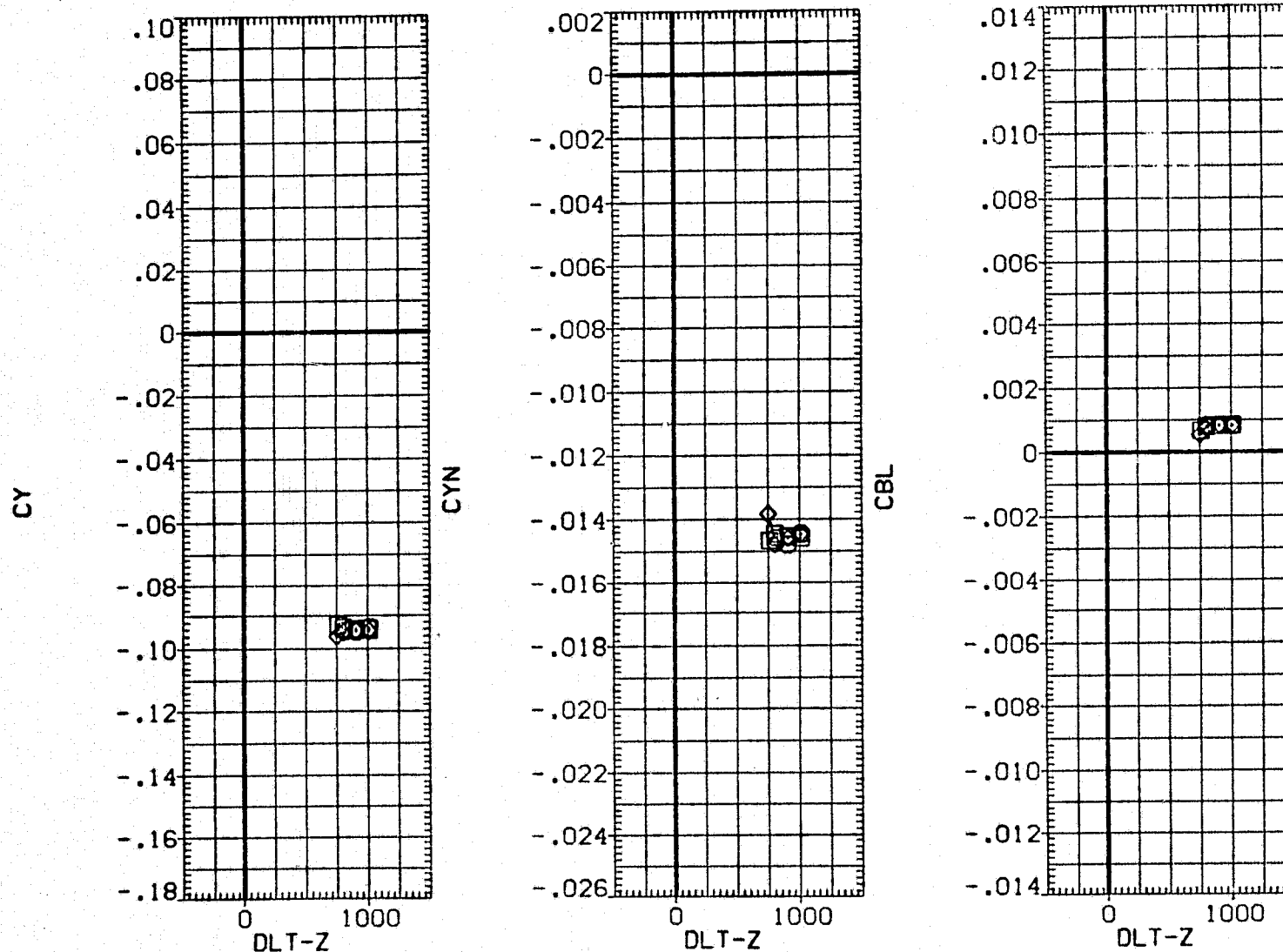


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR380)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.537	60.000	DLTALF	5.000	
□	200.580	.000	MACH	.000	
		.000	ELEVON	7.980	
		24.000	P0	.000	
				300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

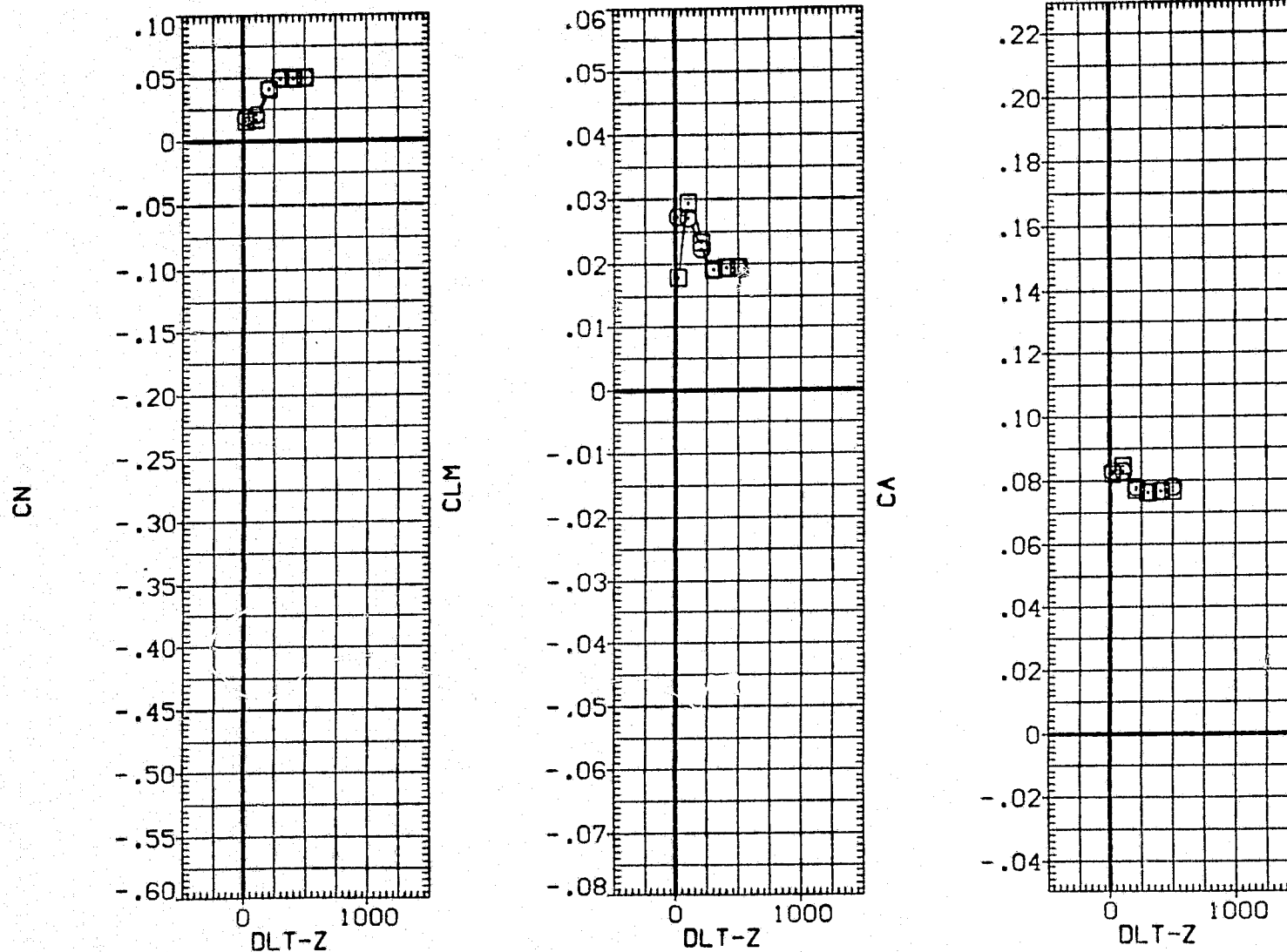


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR380)

SYMBOL
○
□

DLT-X
.537
200.580

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES
60.000
.000
.000
.000
24.000

ALPHA
DLTALF
MACH
ELEVON
PO

5.000
.000
7.980
.000
300.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

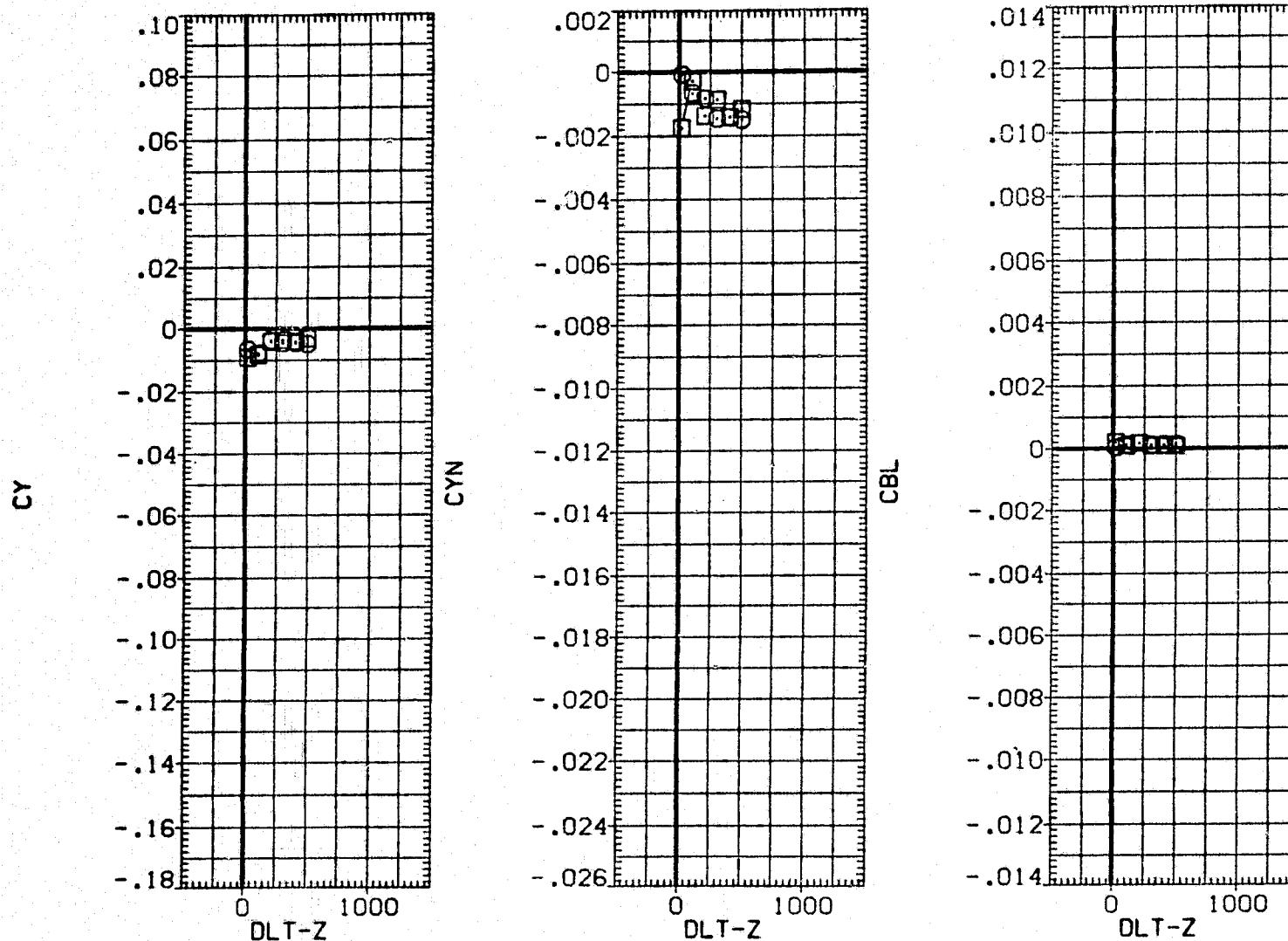


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR381)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.502	60.000	ALPHA	5.000
□	200.400	.000	DLTALF	-10.000
◇	400.470	.000	MACH	7.980
		.000	ELEVON	.000
		24.000	P0	300.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1350.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

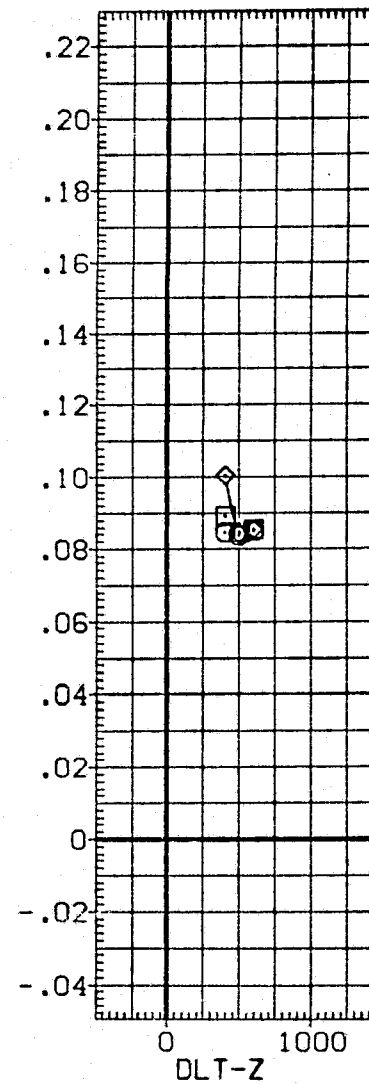
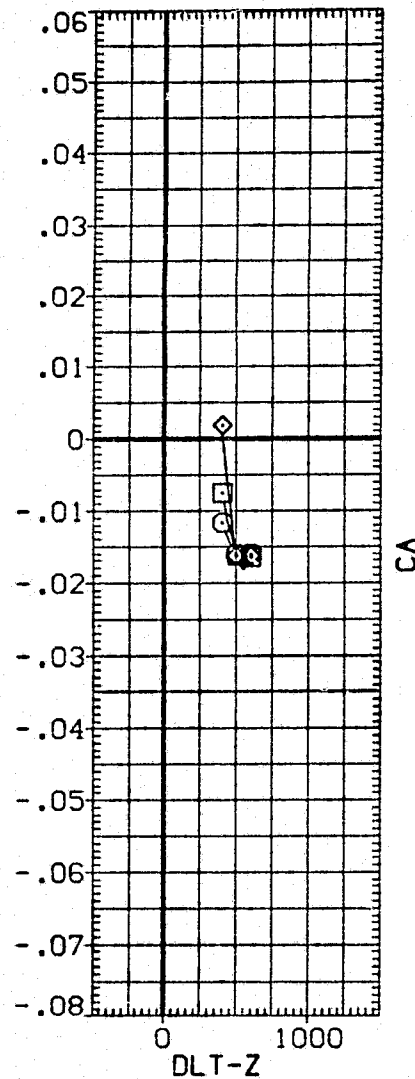
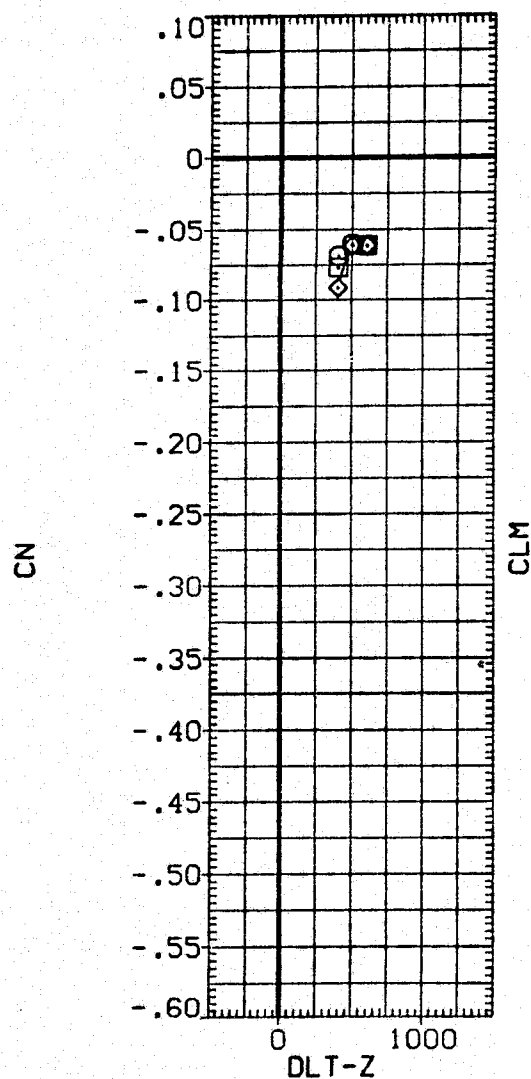


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR381)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.502	60.000	DLTALF	-10.000	
□	200.400	BETA	.000	MACH	7.980
◇	400.470	DLTBTA	.000	ELEVON	.000
		AILRON	.000	P0	300.000
		GRID	24.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

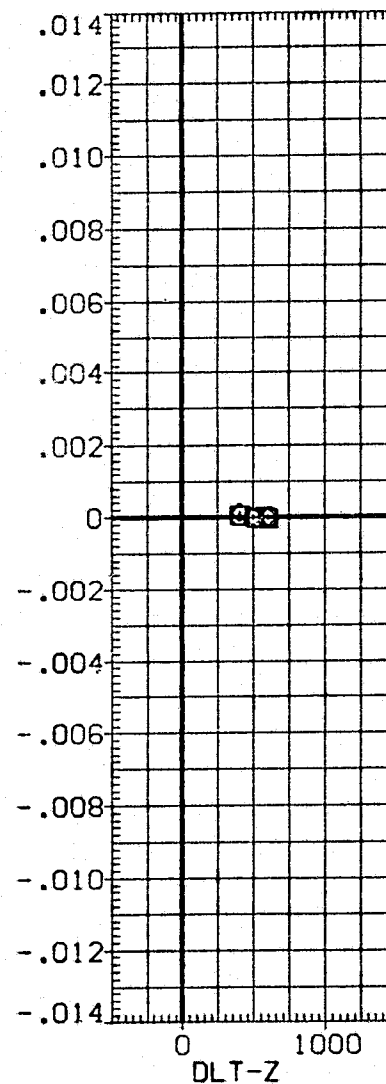
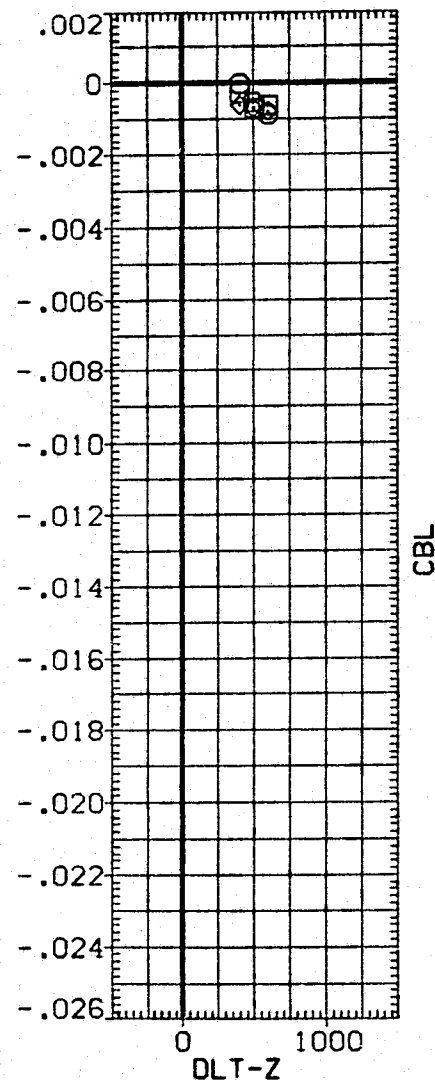
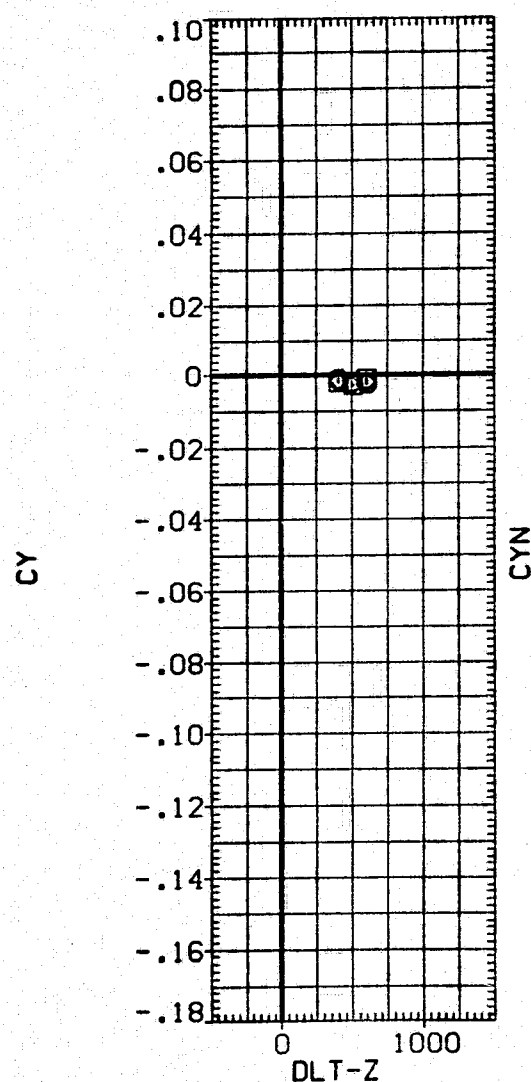


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR383)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.402	60.000	ALPHA	5.000	
□	200.370	.000	DLTALF	-20.000	
◇	400.450	.000	MACH	7.980	
		.000	ELEVON	.000	
		24.000	P0	300.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRF	1360.1000 IN. XT
YMRF	.0000 IN. YT
ZMRF	416.4000 IN. ZT
SCALE	.0100

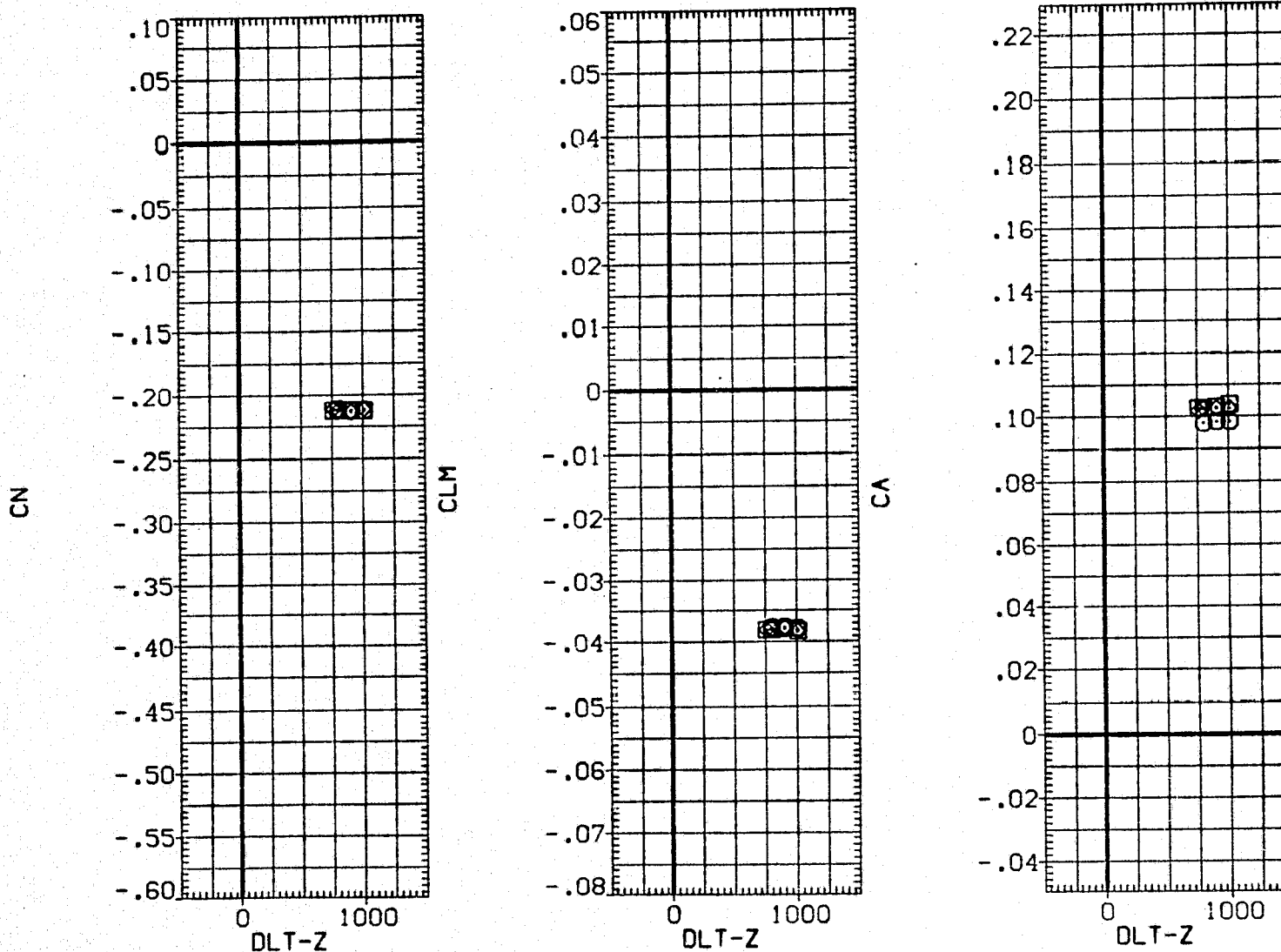


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR383)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.402	60.000	ALPHA	5.000	
□	200.370	BETA	.000	DLTALF	-20.000
◇	400.450	DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	24.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

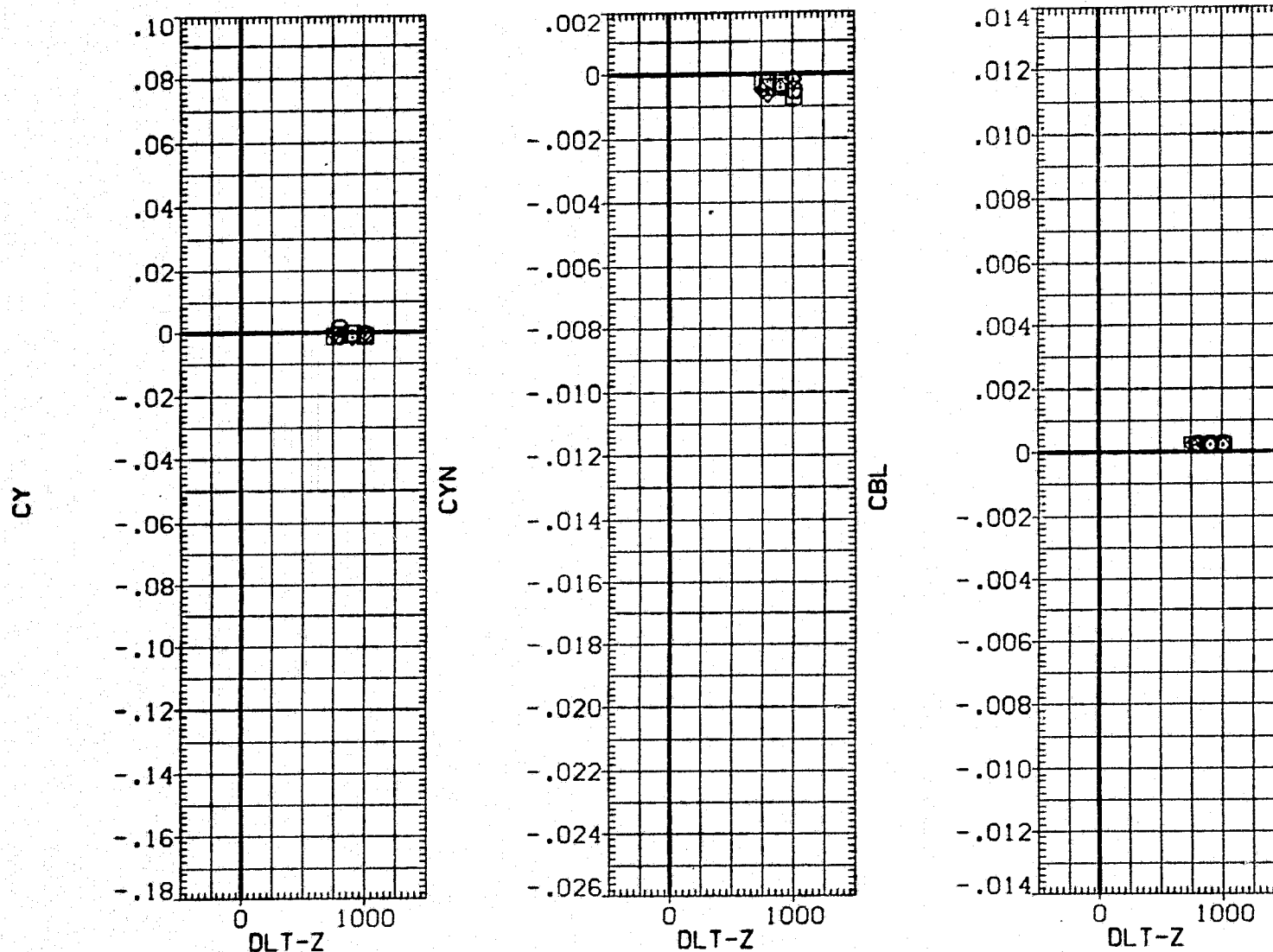


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR384)

SYMBOL
○
□

DLT-X
.516
200.560

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES

60.000 ALPHA 5.000
.000 DLTALF .000
3.000 MACH 7.980
.000 ELEVON .000
24.000 PO 300.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.
LREF 1290.3000 IN.
BREF 1290.3000 IN.
XMRP 1360.1000 IN. XT
YMRP .0000 IN. YT
ZMRP 416.4000 IN. ZT
SCALE .0100

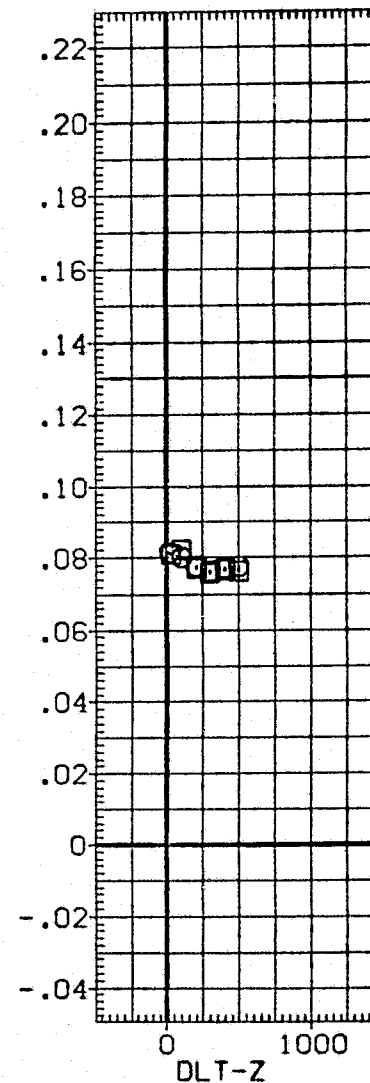
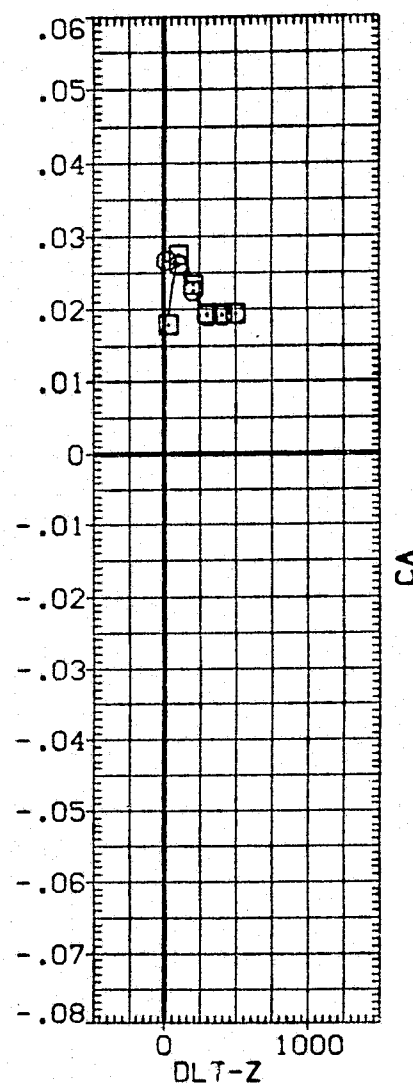
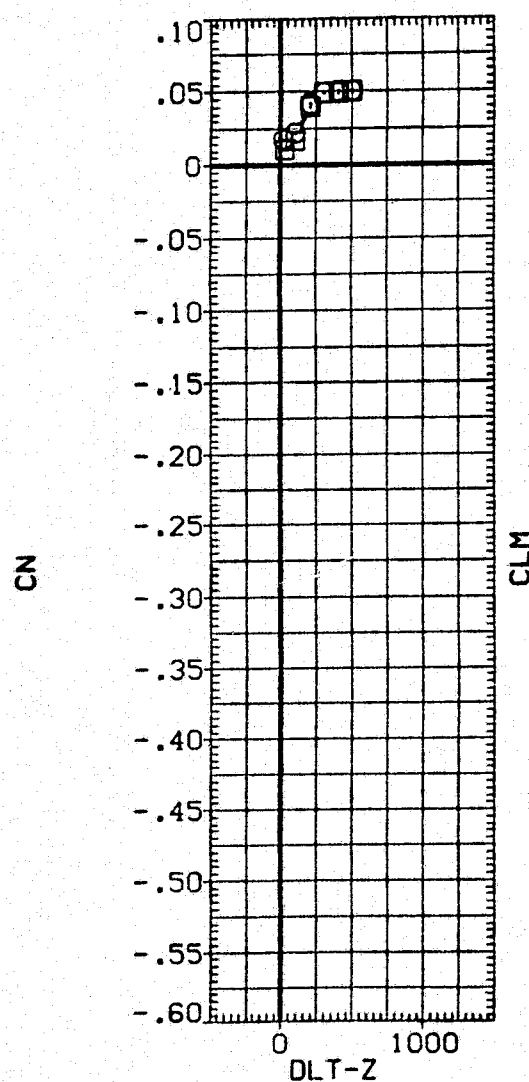


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(CIA17) ORB AND ET SEPARATING(ET DATA) (ATR384)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.516	60.000	DLTALF	5.000
□	200.560	.000	MACH	.000
		3.000	ELEVON	7.980
		.000	PO	.000
		24.000		300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

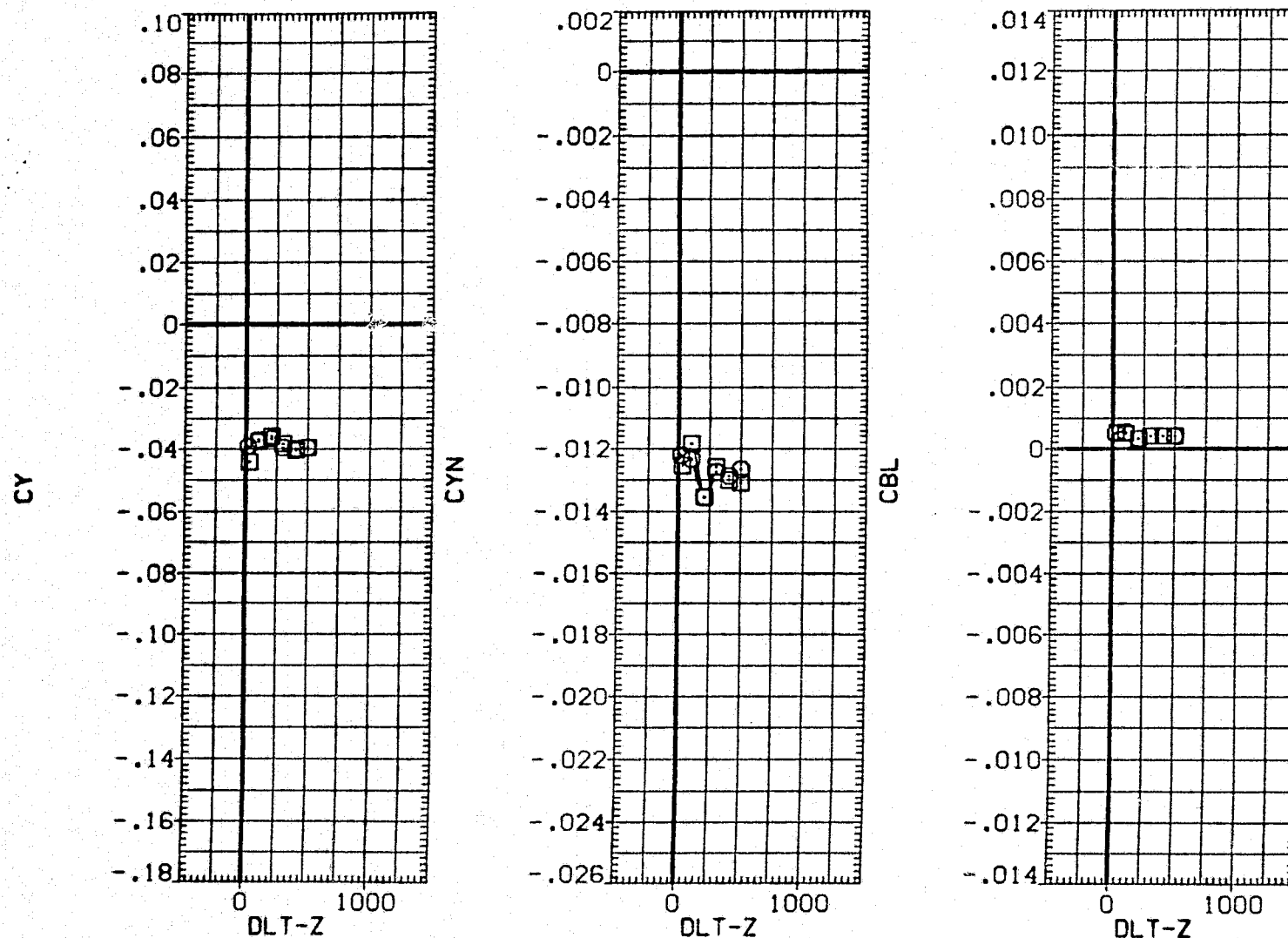


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR385)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	BETA	DLTBT	ATLRON	GRID	PO
○	.475					
□	200.440					
◇	400.350					

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

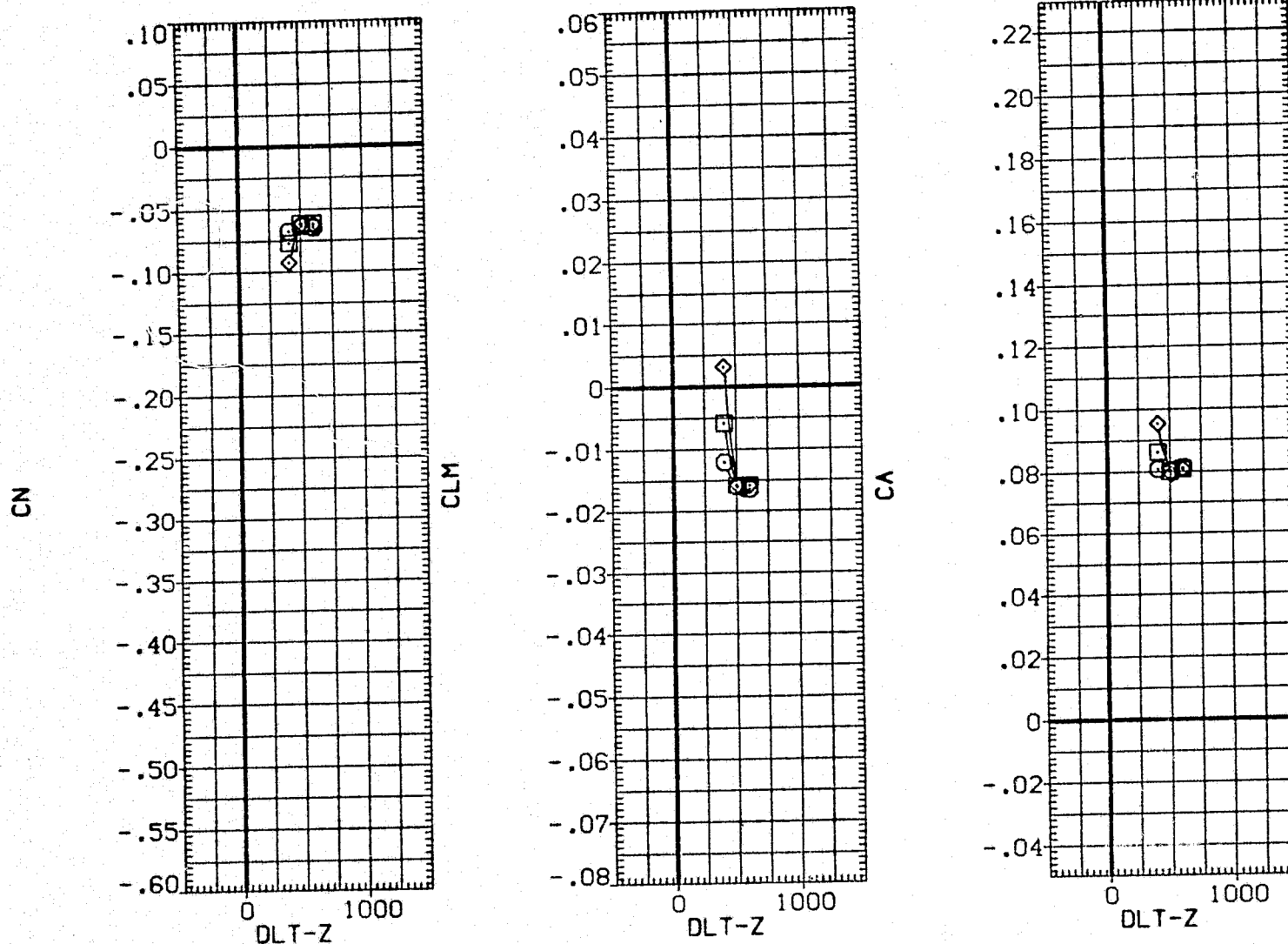


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR385)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.475		60.000	ALPHA 5.000
□	200.440	BETA	.000	DLTALF -10.000
◇	400.350	DLTBTA	3.000	MACH 7.980
		AILRON	.000	ELEVON .000
		GRID	24.000	P0 300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

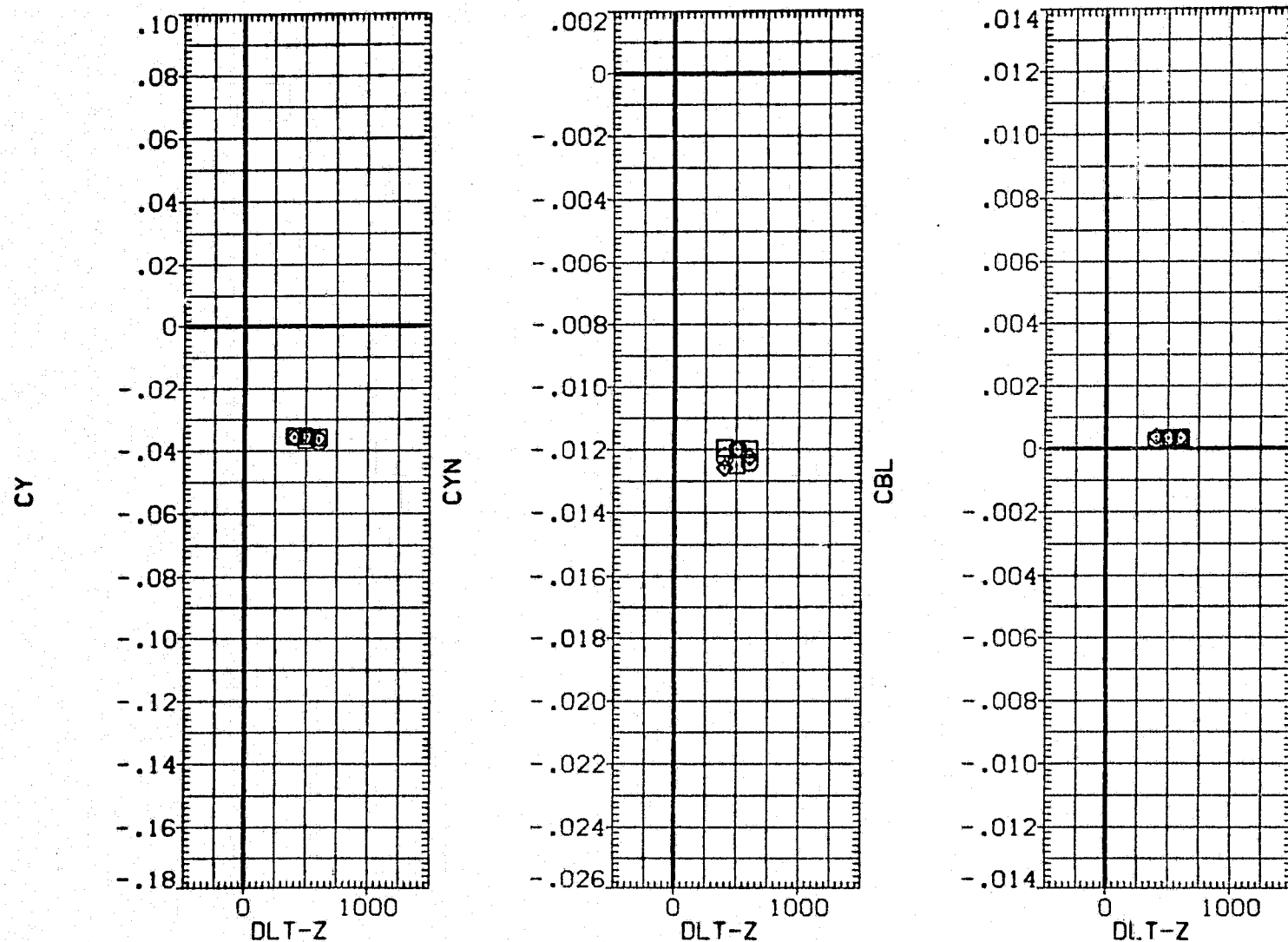


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR387)

SYMBOL		PARAMETRIC VALUES	
○	DLT-X .357	60.000	ALPHA 5.000
◇	200.360	.000	DLTALF -20.000
□	400.390	3.000	MACH 7.980
		.000	ELEVON .000
		24.000	PO 300.000

REFERENCE INFORMATION		
SREF	2690.0000	SO. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

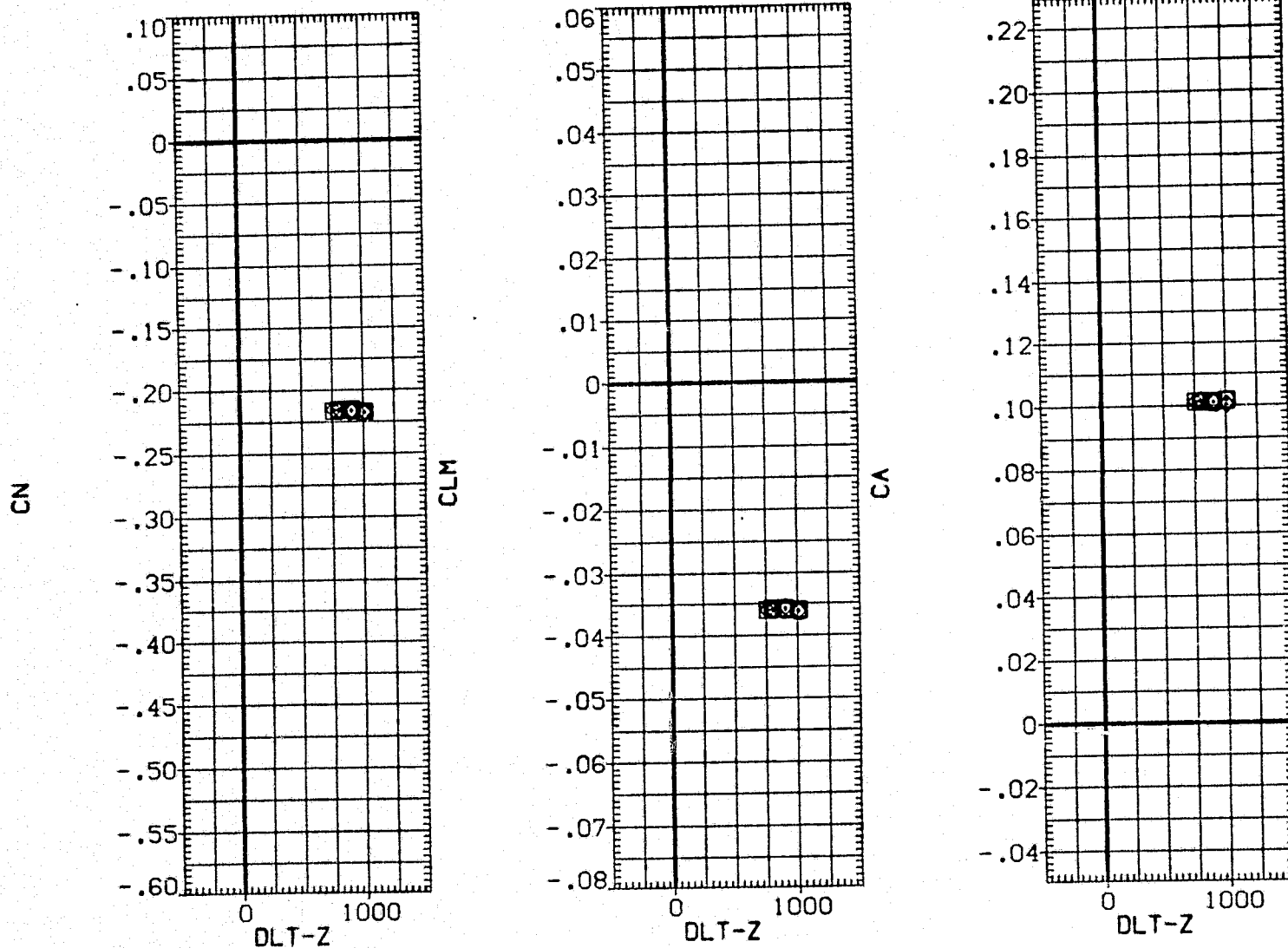


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR387)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.357	BETA	60.000	ALPHA	5.000
	200.360	DLTBTA	.000	DLTALF	-20.000
	400.390	AILRON	3.000	MACH	7.980
		GRID	.000	ELEVON	.000
			24.000	PG	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

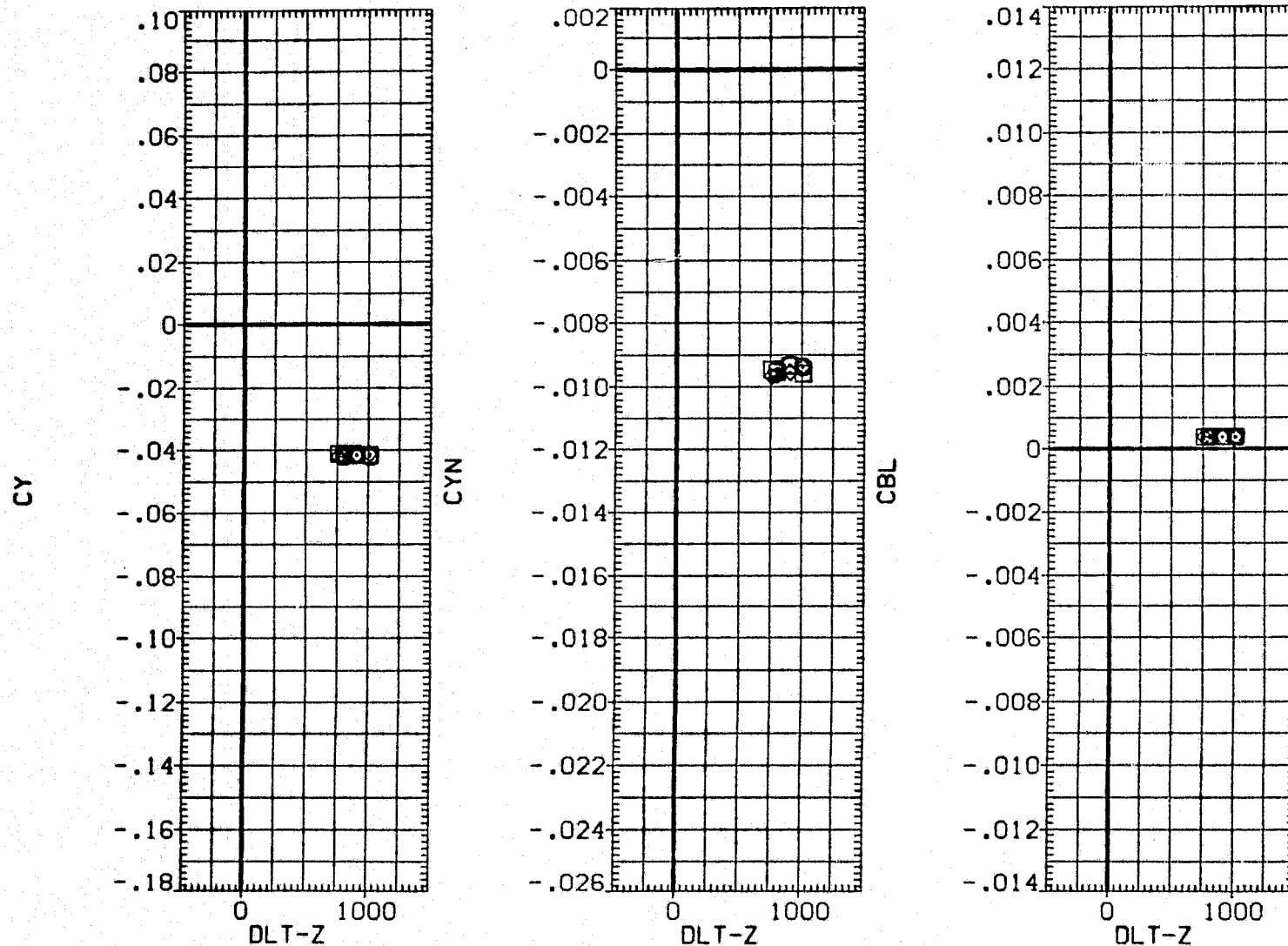


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR353)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.650	BETA	60.000	5.000	
□	200.610	DLTBT	3.000	.000	
		AILRON	.000	7.980	
		GRID	25.000	.000	
			PO	420.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

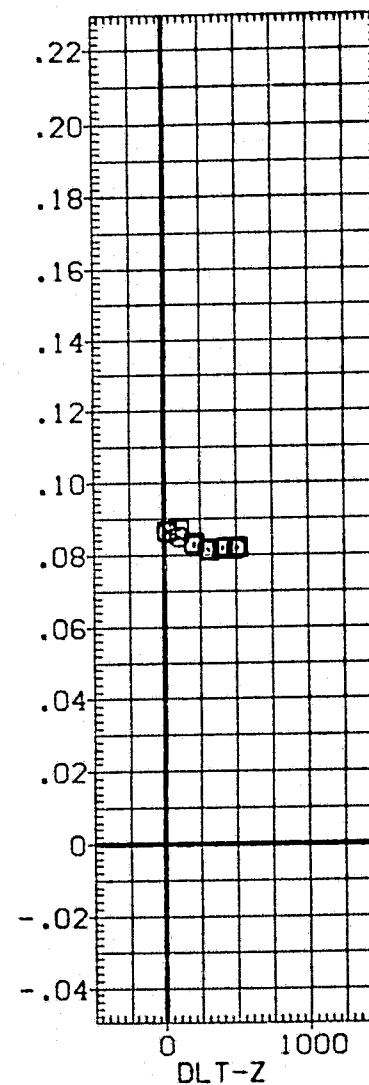
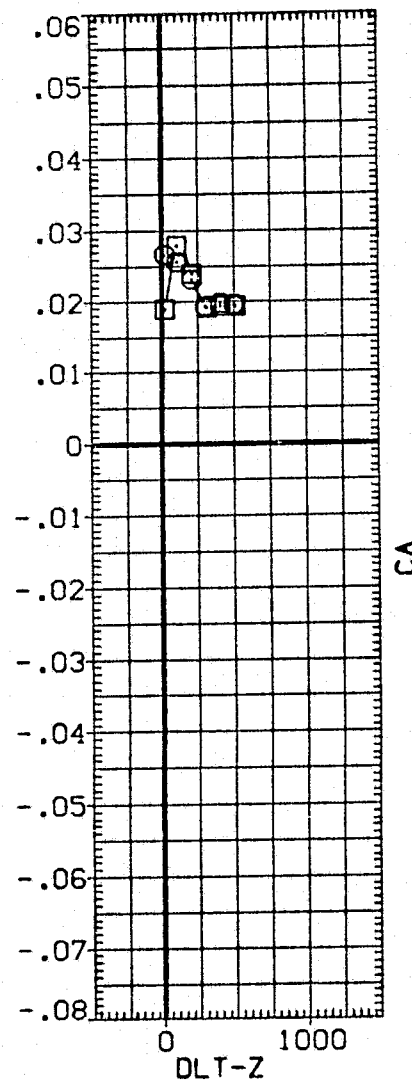
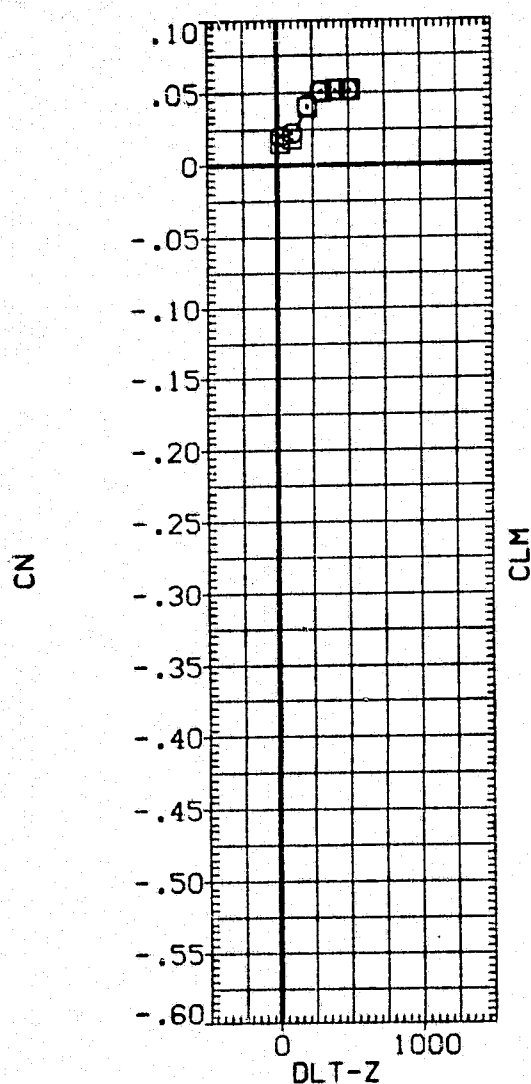


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR353)

SYMBOL		PARAMETRIC VALUES			
○	DLT-X	DLT-Y	60.000	ALPHA	5.000
□	.650	BETA	3.000	DLTALF	.000
	200.610	DLTBT/A	.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	25.000	PO	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

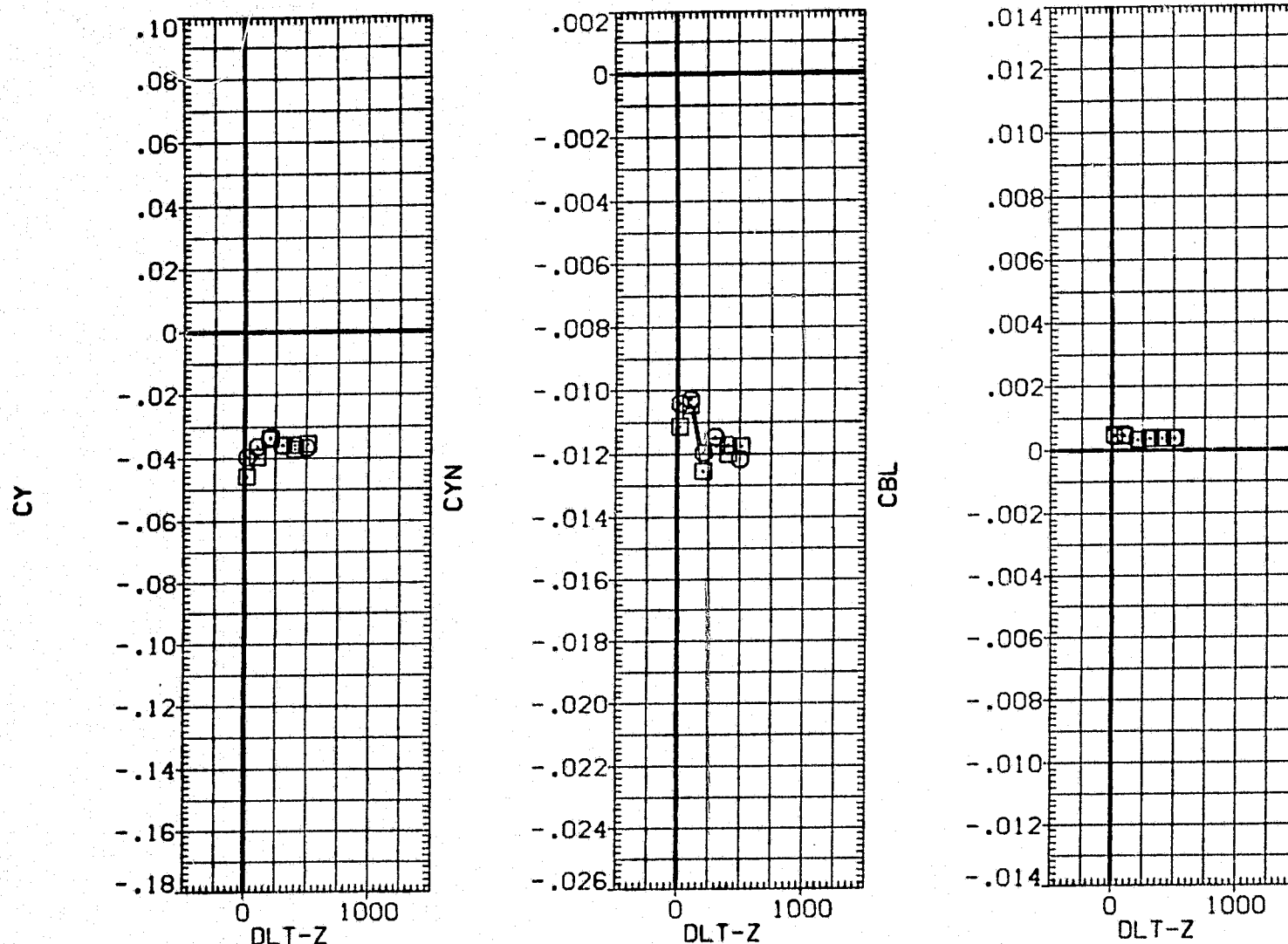


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR354)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.627	60.000	ALPHA	5.000
□	200.490	3.000	DLTALF	-10.000
◇	400.530	.000	MACH	7.980
		.000	ELEVON	.000
		25.000	P0	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

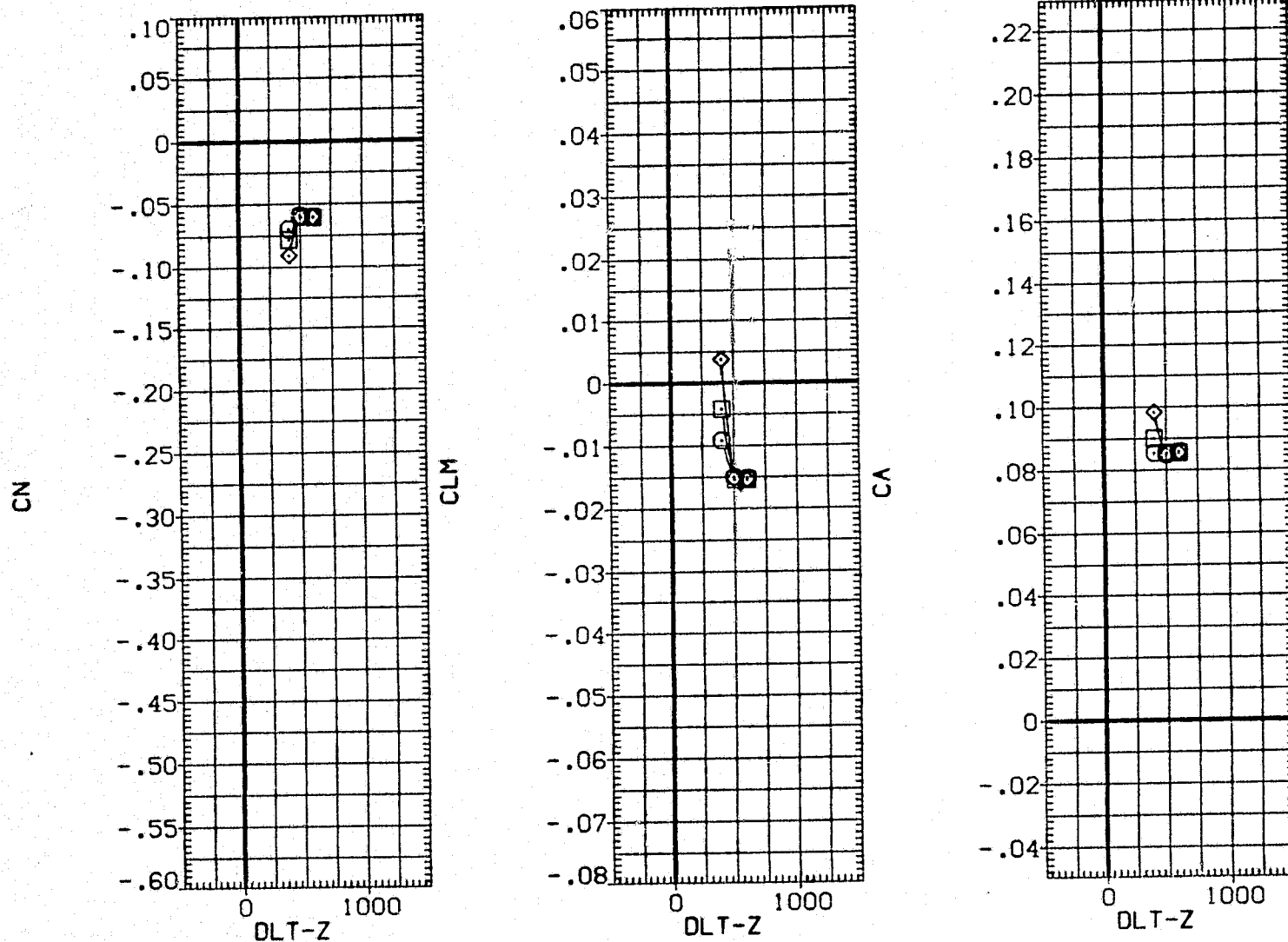


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR354)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.627	60.000	ALPHA	5.000
□	200.490	BETA	DLTALF	-10.000
◇	400.530	DLTBTA	MACH	7.980
		AILRON	ELEVON	.000
		GRID	PO	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.F.T.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

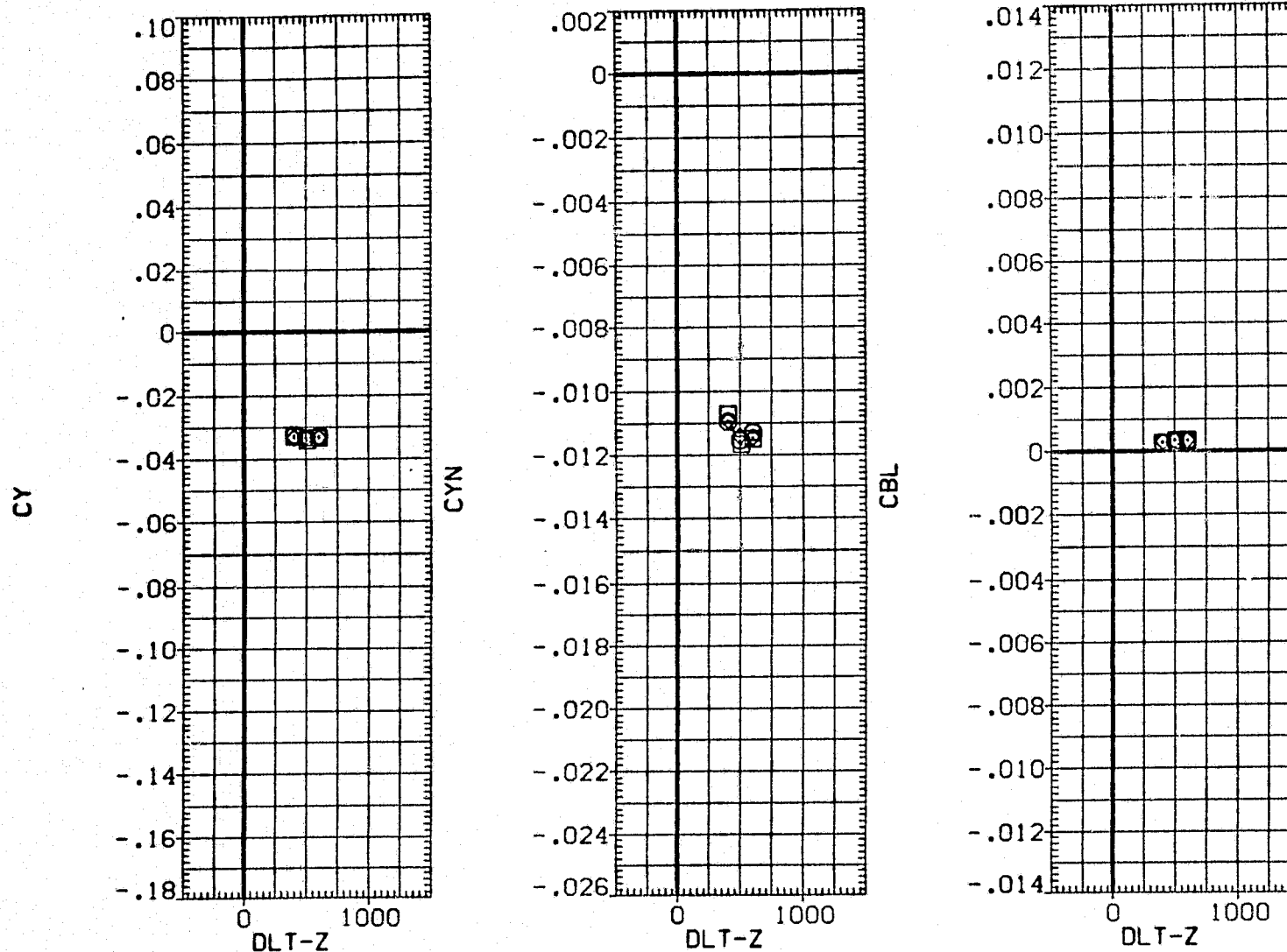


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR356)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.422	60.000	ALPHA	5.000
□	200.400	BETA	3.000	DLTALF -20.000
◇	400.560	DLTBTA	.000	MACH 7.980
		AILRON	.000	ELEVON .000
		GRID	25.000	P0 420.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. YT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

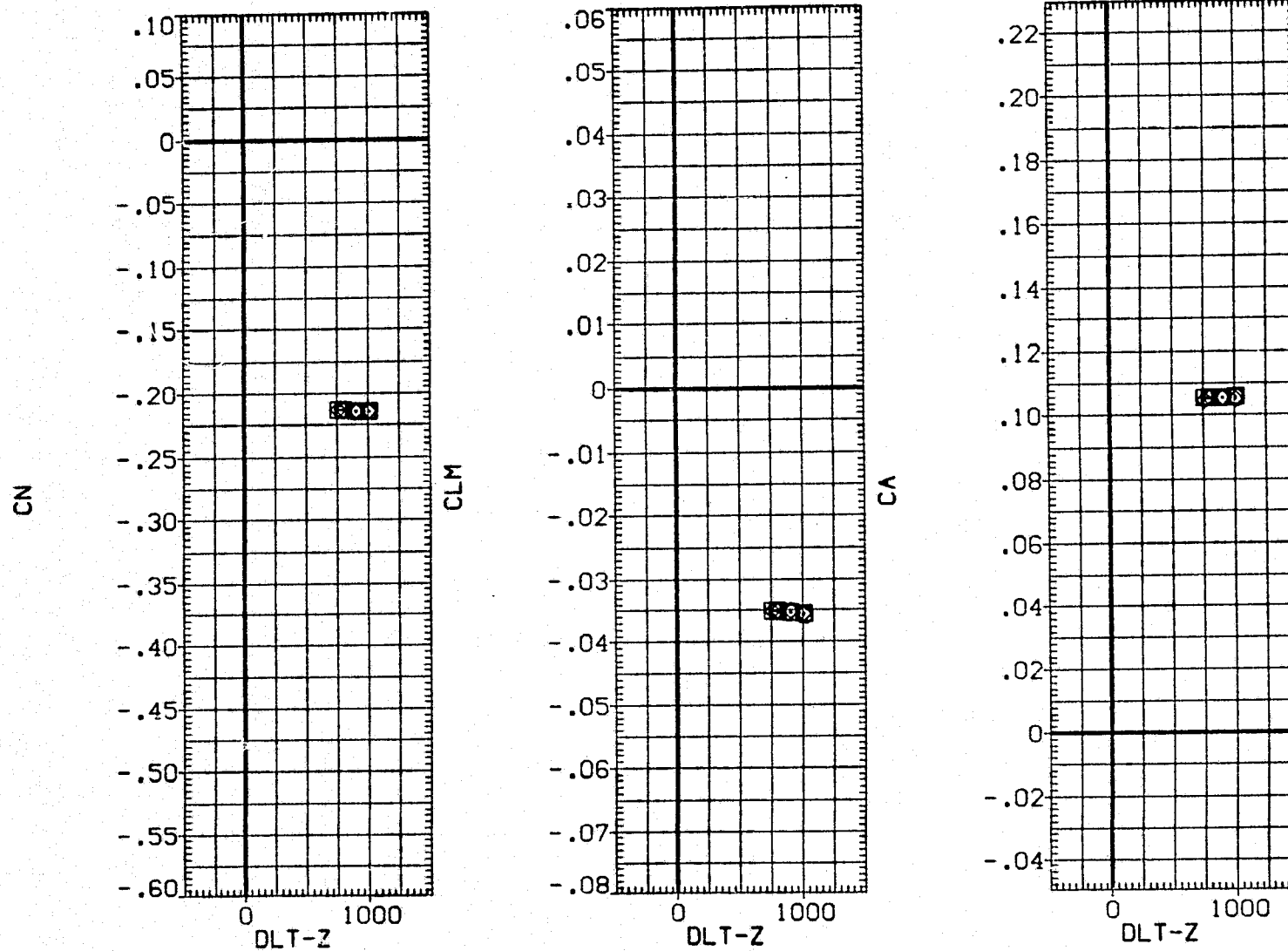


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR356)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES
○	.422	60.000	ALPHA 5.000
□	200.400	BETA 3.000	DLTALF -20.000
◇	400.560	DLTBTA .000	MACH 7.980
		AILRON .000	ELEVON .000
		GRID 25.000	PG 420.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

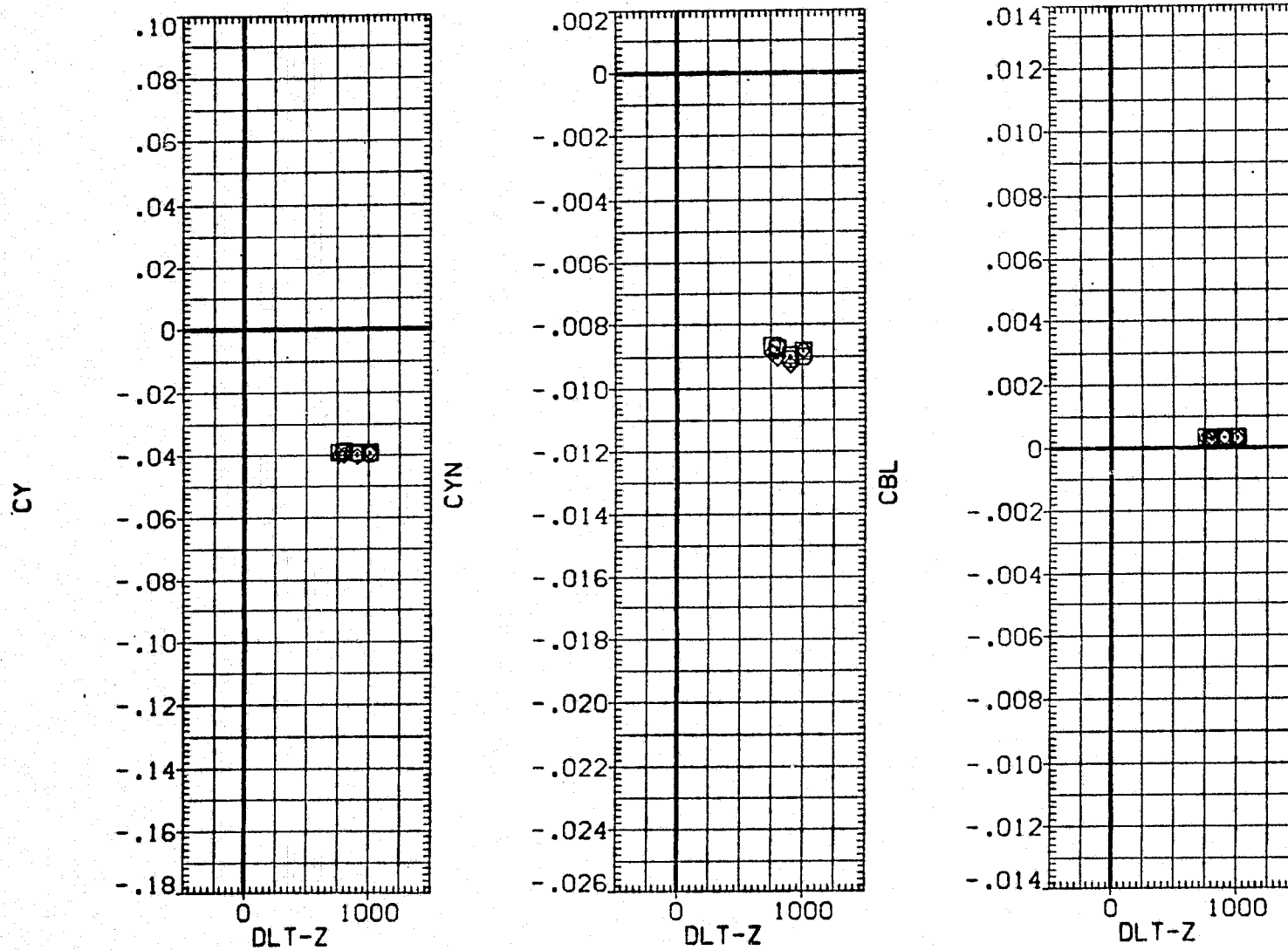


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1417) ORB AND ET SEPARATING(ET DATA) (ATR357)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
	○ .540	□ 200.540	60.000	ALPHA 5.000
			3.000	DLTALF .000
			3.000	MACH 7.980
			.000	ELEVON .000
			25.000	PO 420.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

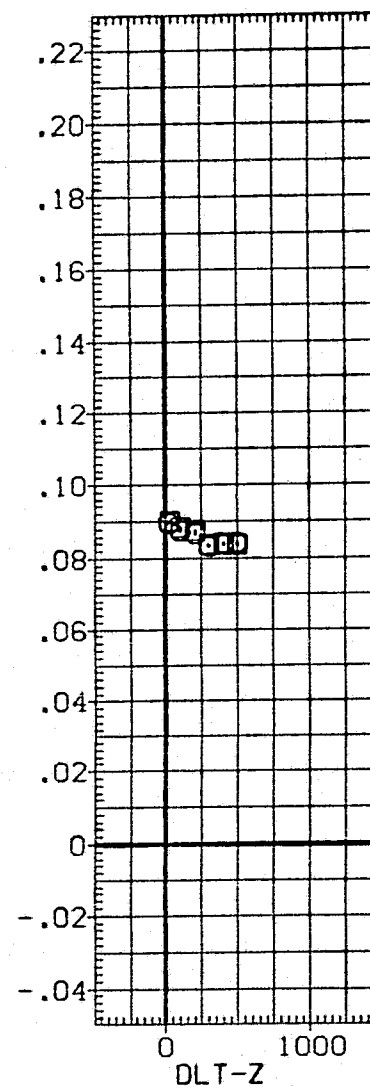
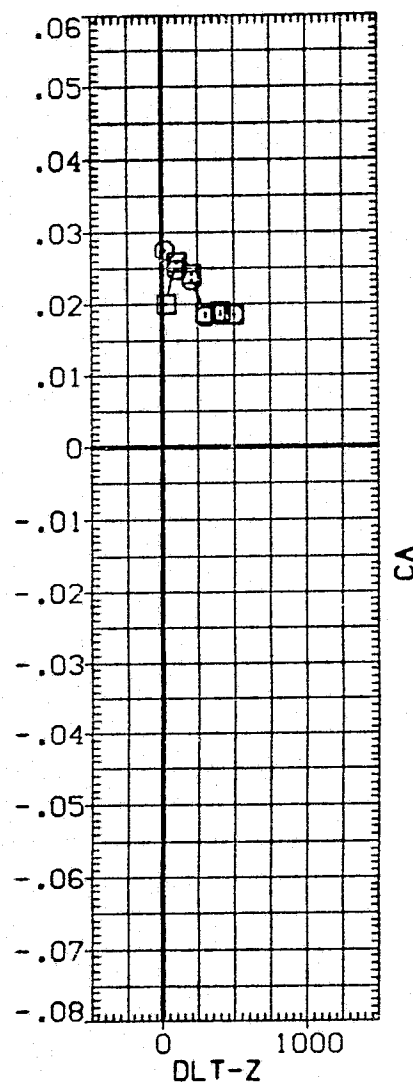
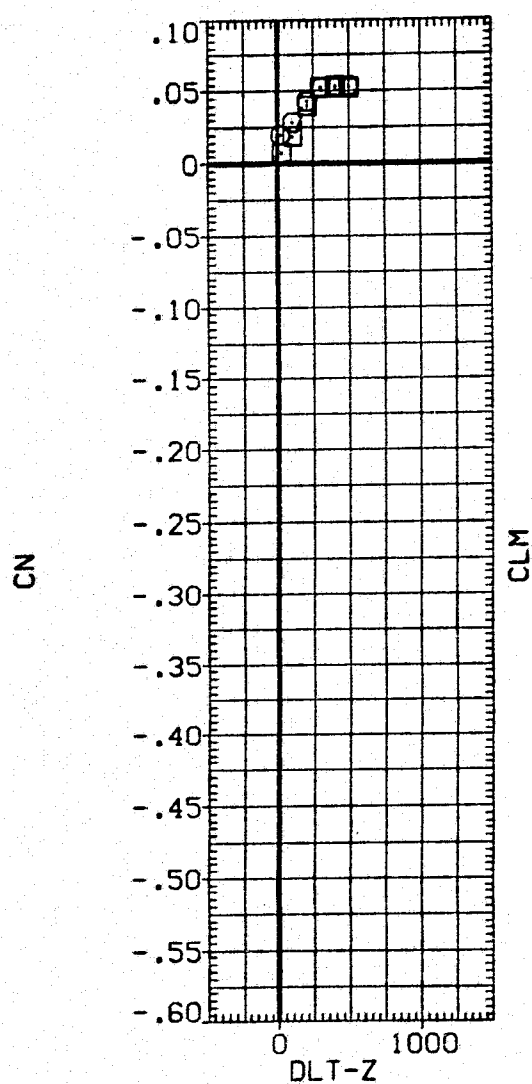


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR357)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
○	.540	DLT-Y	60.000	DLTALF	.000
□	200.540	BETA	3.000	MACH	7.980
		DLTBTA	3.000	ELEVON	.000
		AILRON	.000	PQ	420.000
		GRID	25.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

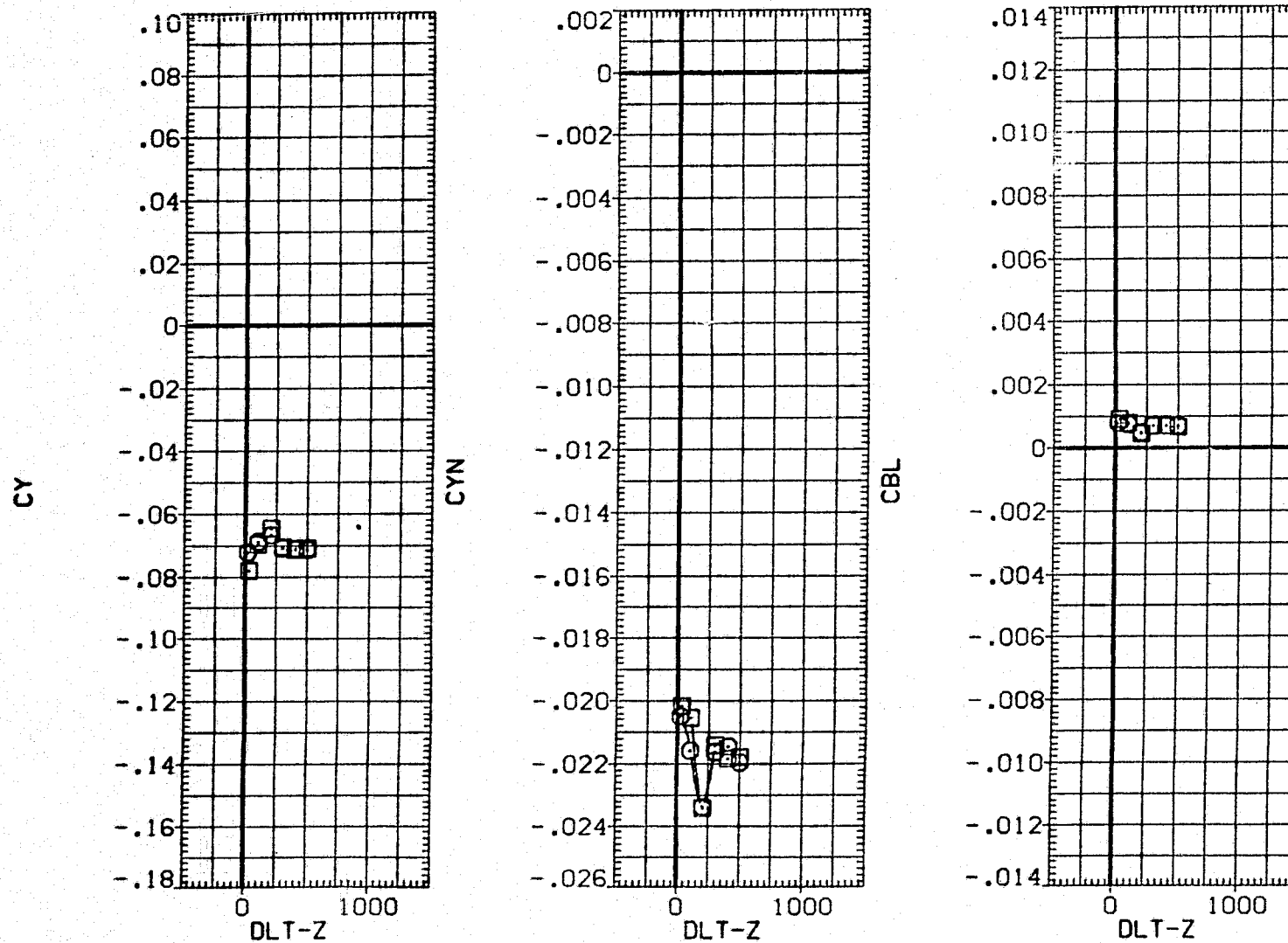


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR358)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.483		60.000	-10.000	7.980	.000
□	200.520		3.000			
◇	400.480		3.000			
			AILRON			
			GRID			
			25.000	420.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

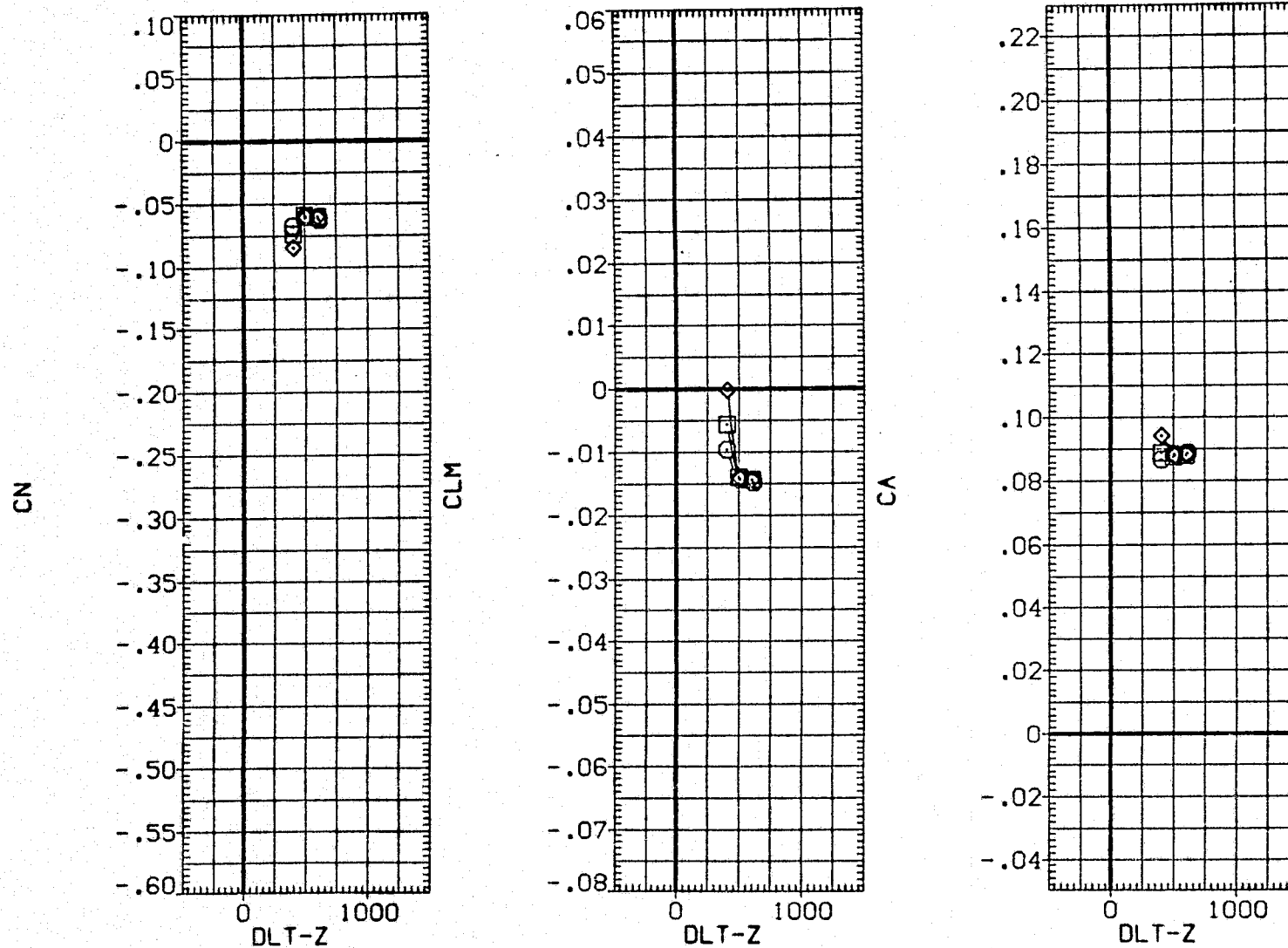


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR358)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.483	60.000	ALPHA	5.000
□	200.520	BETA	3.000	DLTALF -10.000
◇	400.480	DLTBTA	3.000	MACH 7.980
		AILRON	.000	ELEVON .000
		GRID	25.000	PG 420.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

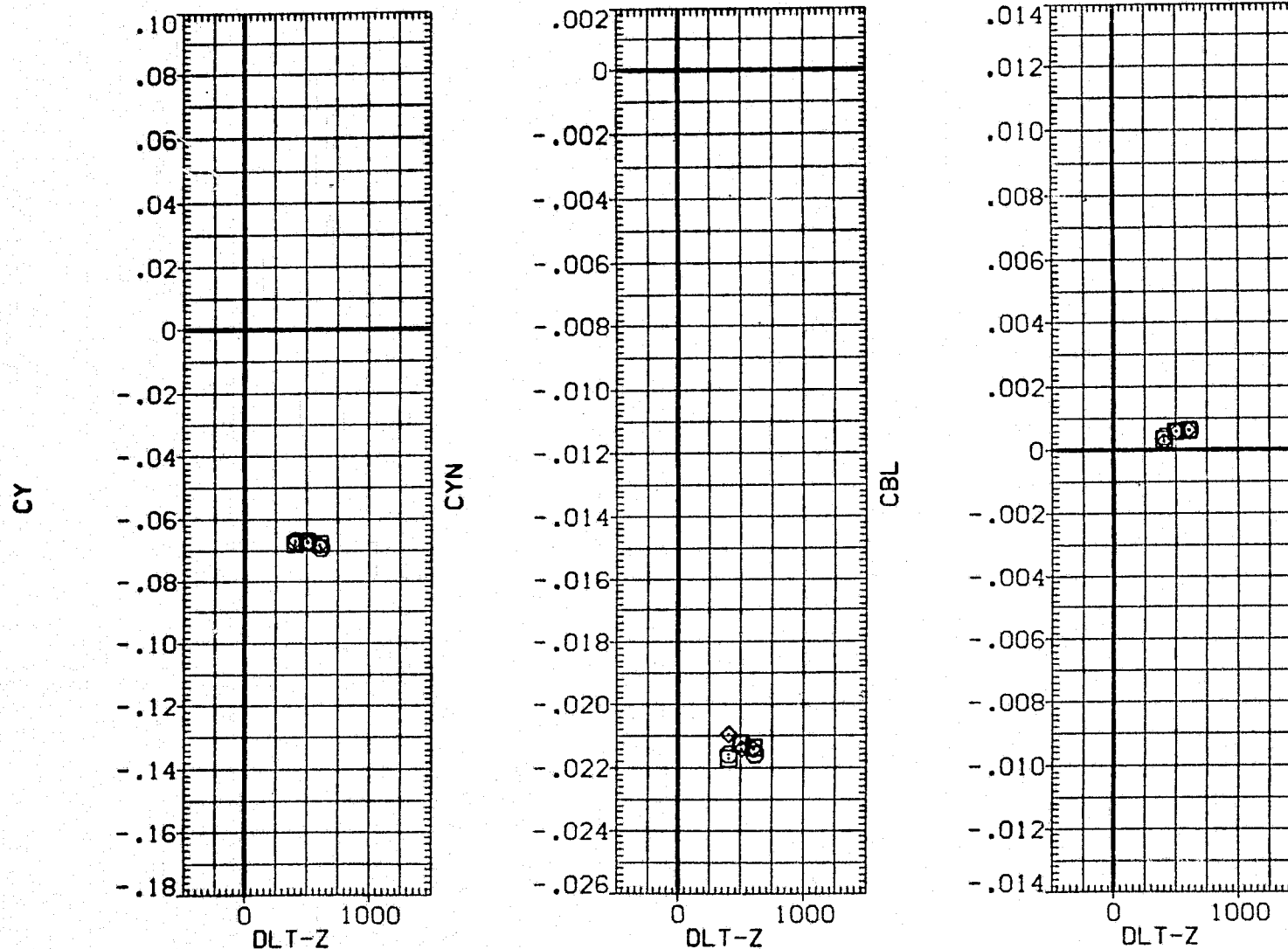


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR360)

SYMBOL
○ □ ◇

DLT-X
.536
200.490
400.560

DLT-Y
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES
60.000
3.000
3.000
.000
25.000

ALPHA
DLTALF
MACH
ELEVON
PO

5.000
-20.000
7.980
.000
420.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

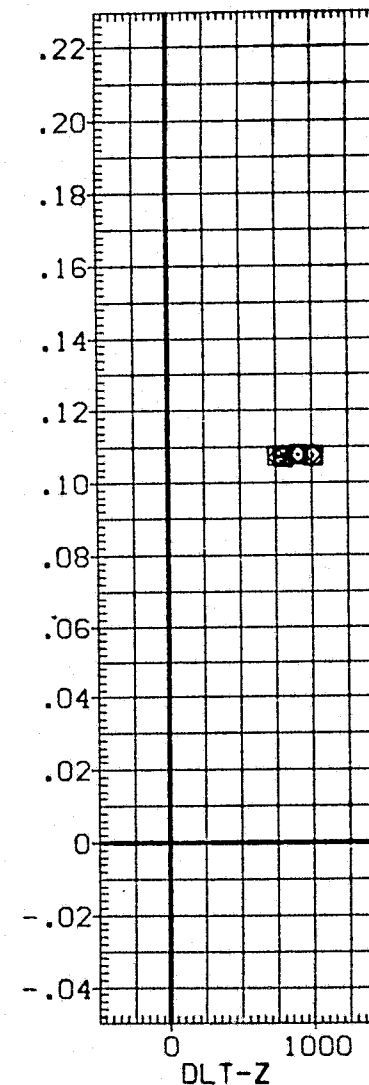
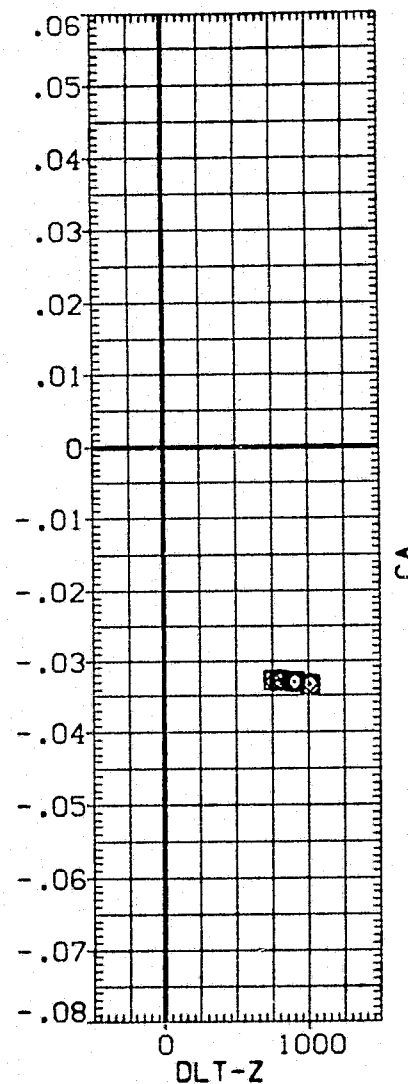
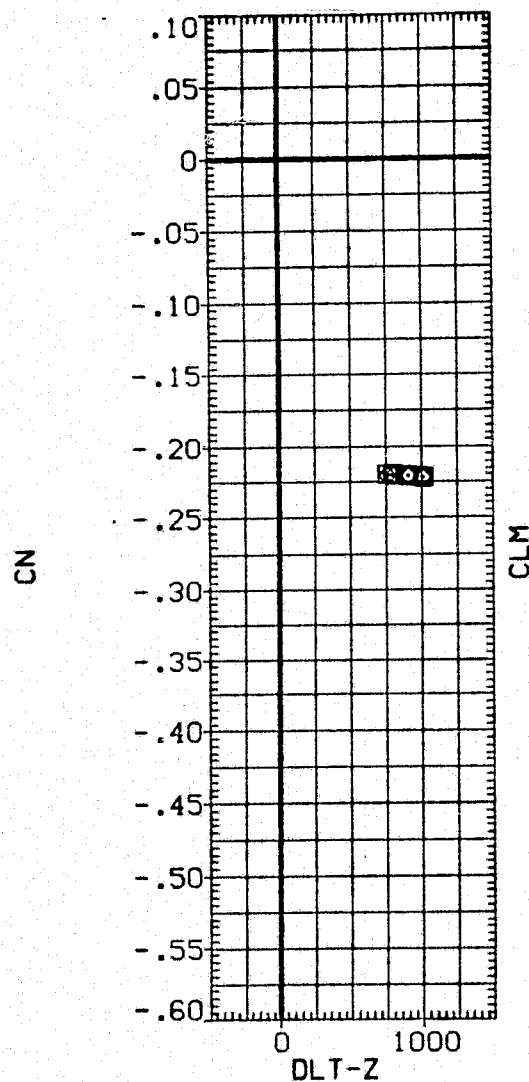


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR360)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	5.000
◇	.536	BETA	60.000	DLTALF	-20.000
□	200.490	DLTBTA	3.000	MACH	7.980
◇	400.560	AILRON	.000	ELEVON	.000
		GRID	25.000	P0	420.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

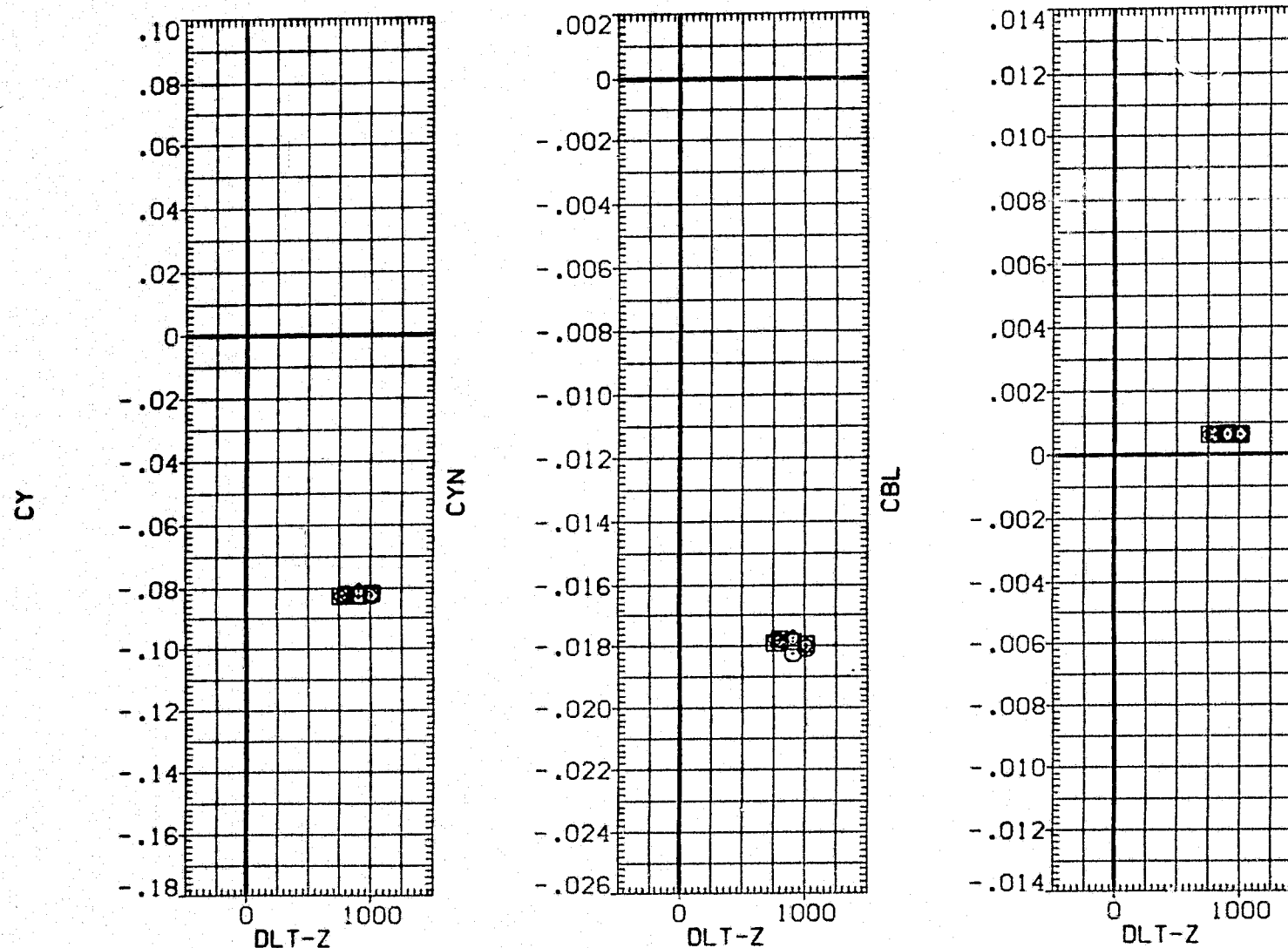


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR372)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.532		60.000	ALPHA -5.000
□	200.480		.000	DLTALF .000
		BETA	.000	MACH 7.980
		DLTBTA	.000	ELEVON .000
		AIRLON	.000	P0 300.000
		GRID	19.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

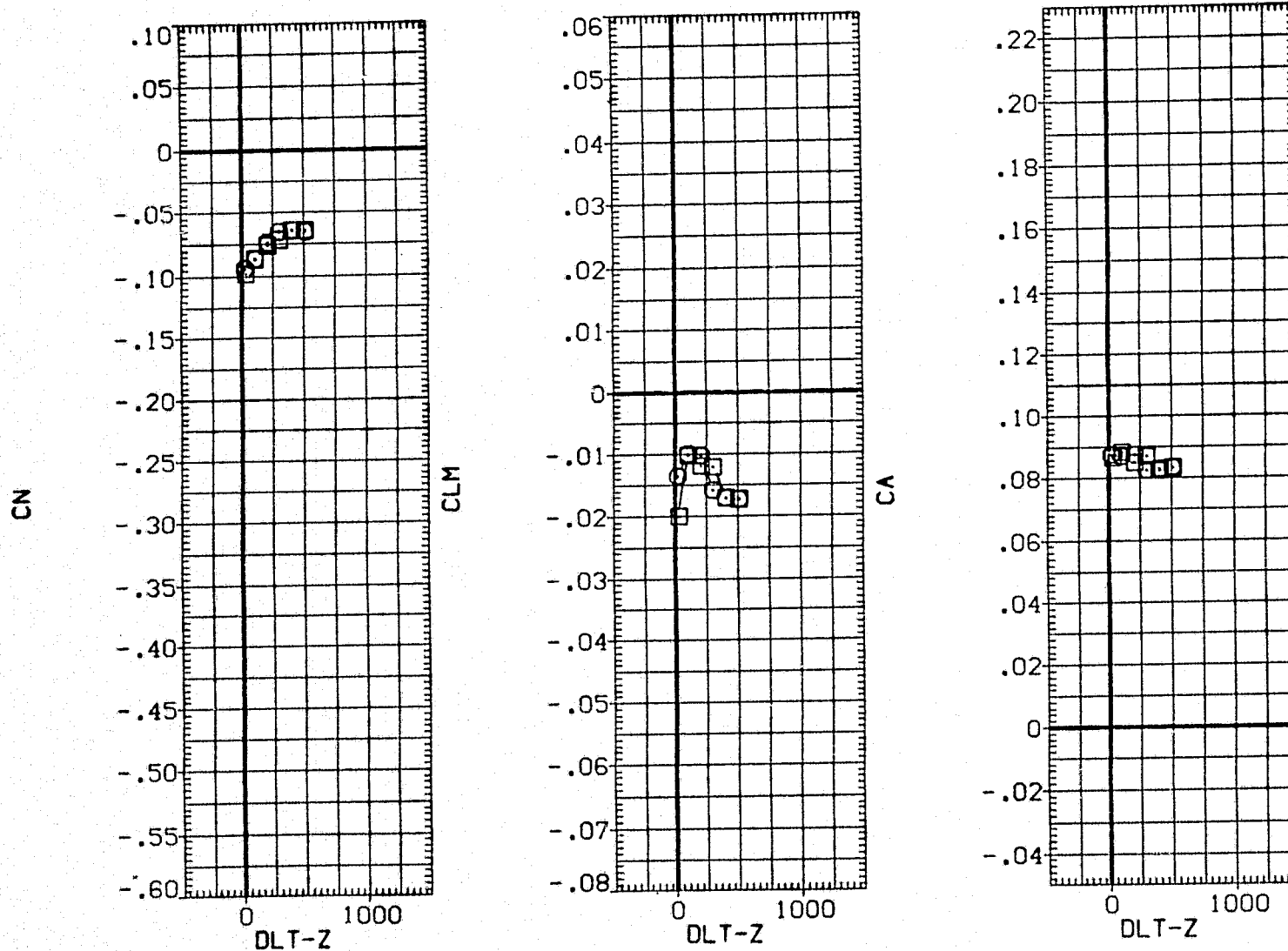


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR372)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.532	60.000	ALPHA	-5.000
□	200.480	.000	DLTALF	.000
		.000	MACH	7.980
		.000	ELEVON	.000
		19.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

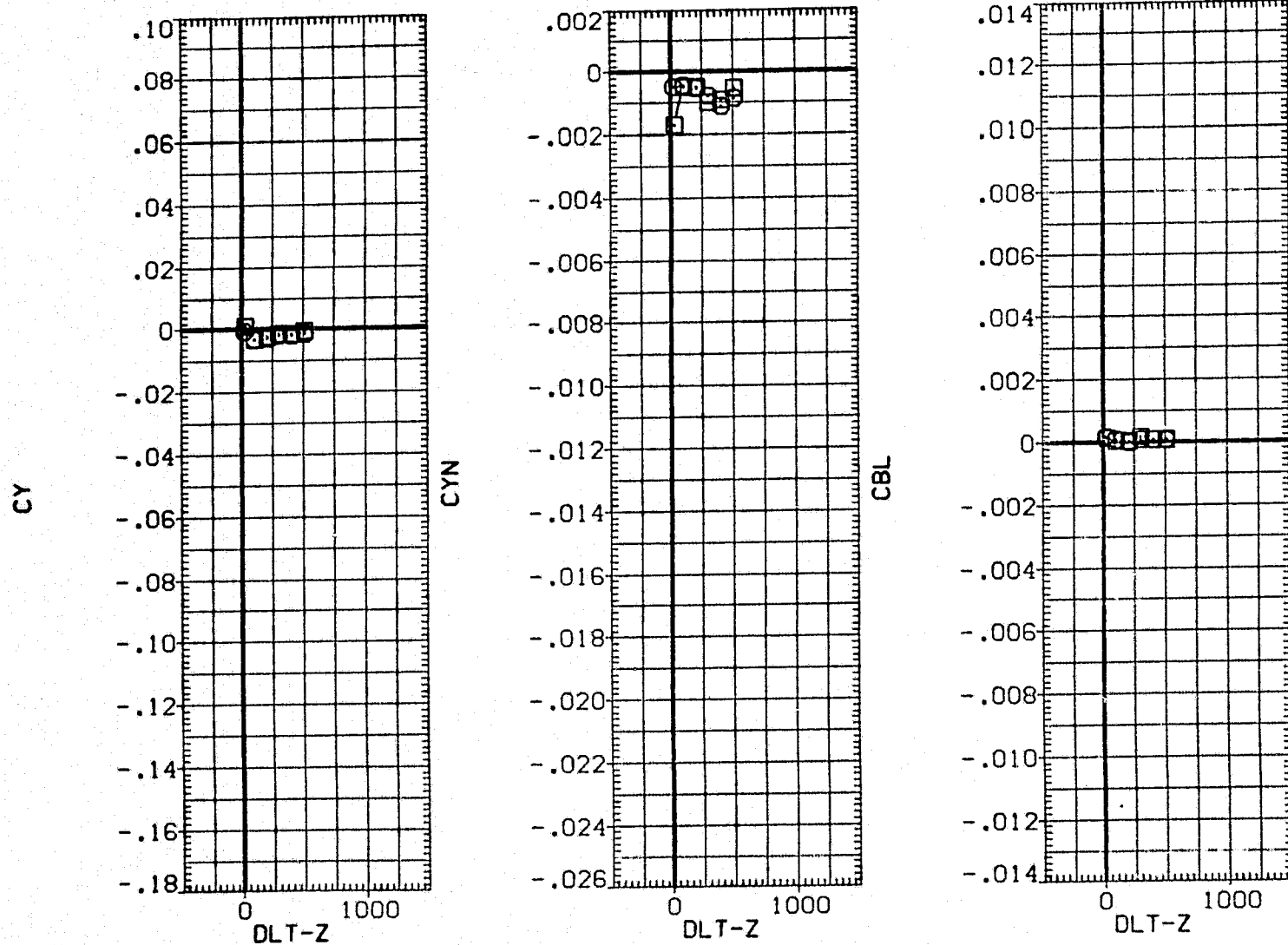


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR373)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.453	60.000	ALPHA	-5.000
□	200.460	.000	DLTALF	-10.000
◇	400.510	.000	MACH	7.980
		.000	ELEVON	.000
		19.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

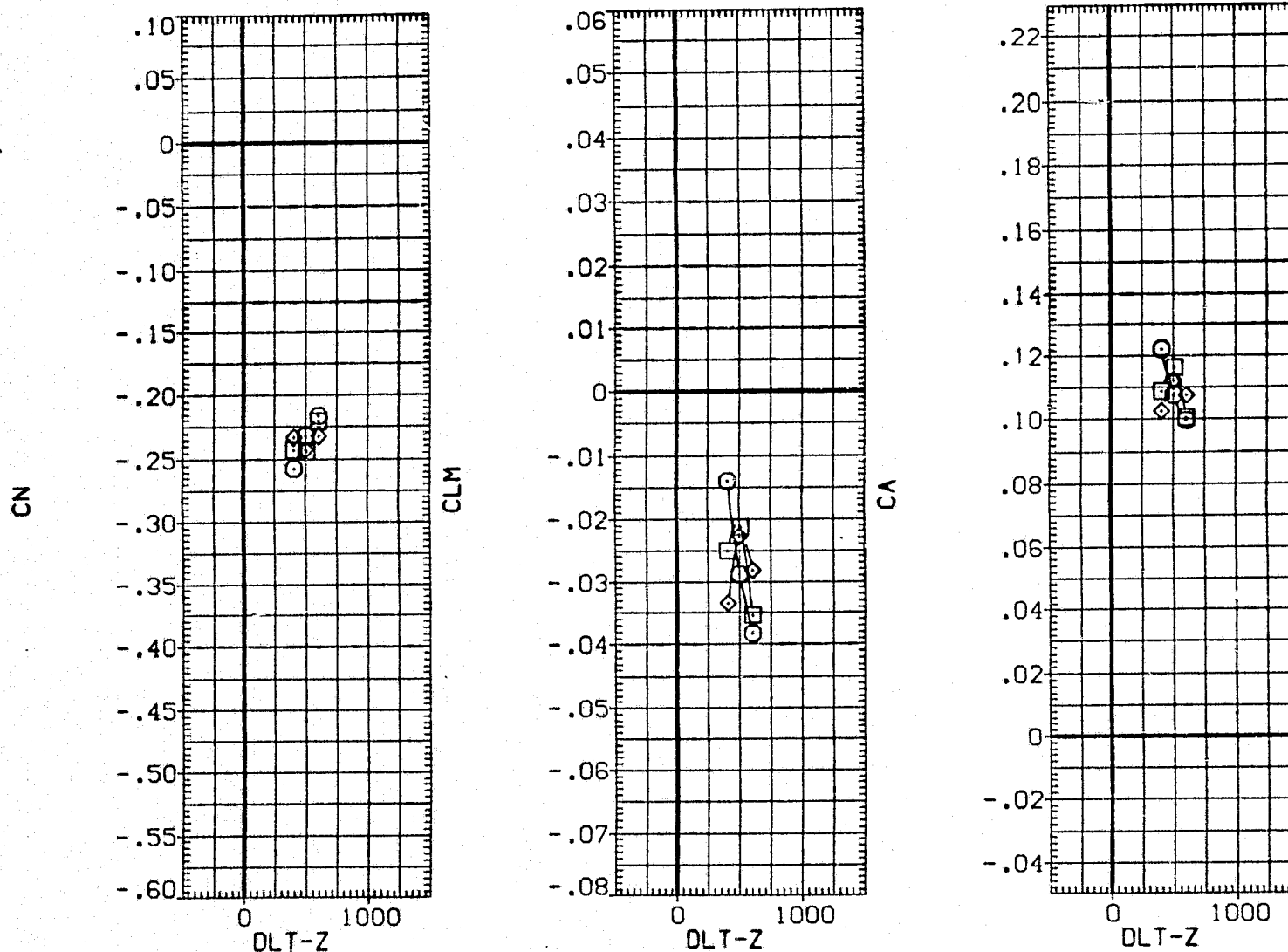


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR373)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.453	60.000	ALPHA	-5.000	
	200.460	BETA	.000	DLTALF	-10.000
	400.510	DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	19.000	PQ	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

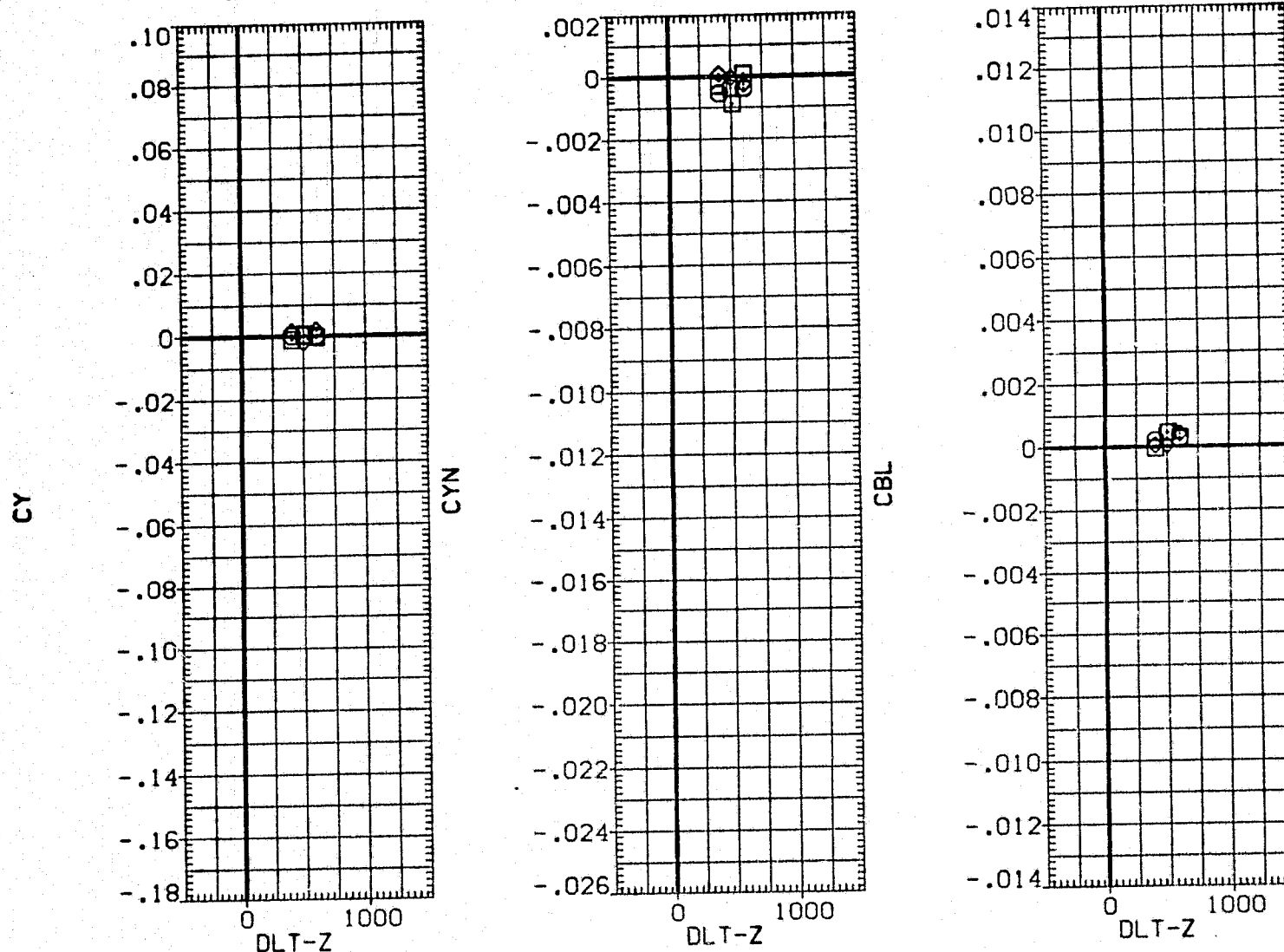


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR375)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.413	60.000	ALPHA	-5.000
□	200.430	.000	DLTALF	-20.000
◇	400.390	.000	MACH	7.980
		.000	ELEVON	.000
		19.000	PO	300.000
			GRID	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

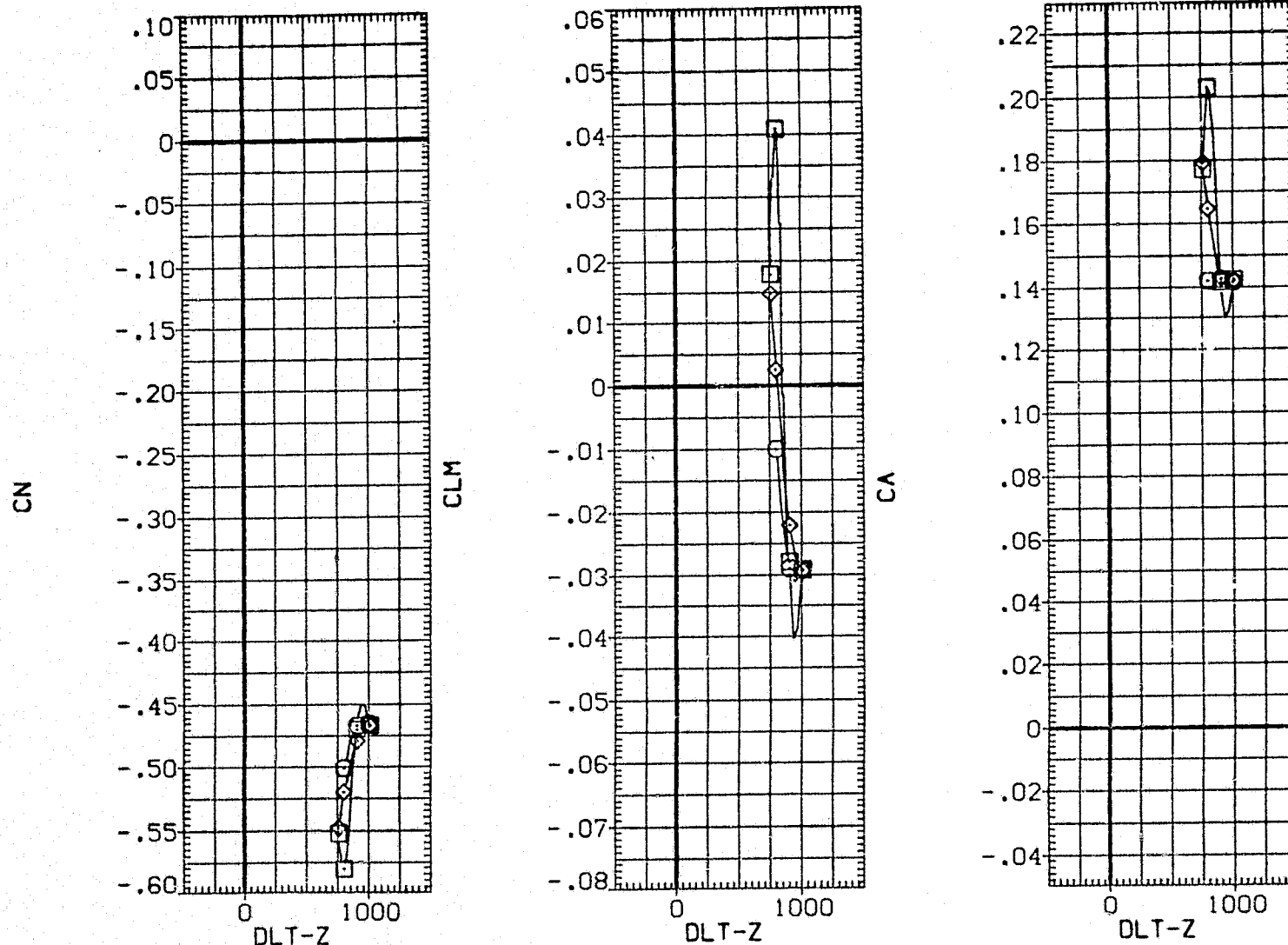


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR375)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y
○	.413	60.000	ALPHA	-5.000
□	200.430	BETA	.000	DLTALF
◇	400.390	DLTBT	.000	MACH
		AILRON	.000	ELEVON
		GRID	19.000	P0
				300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

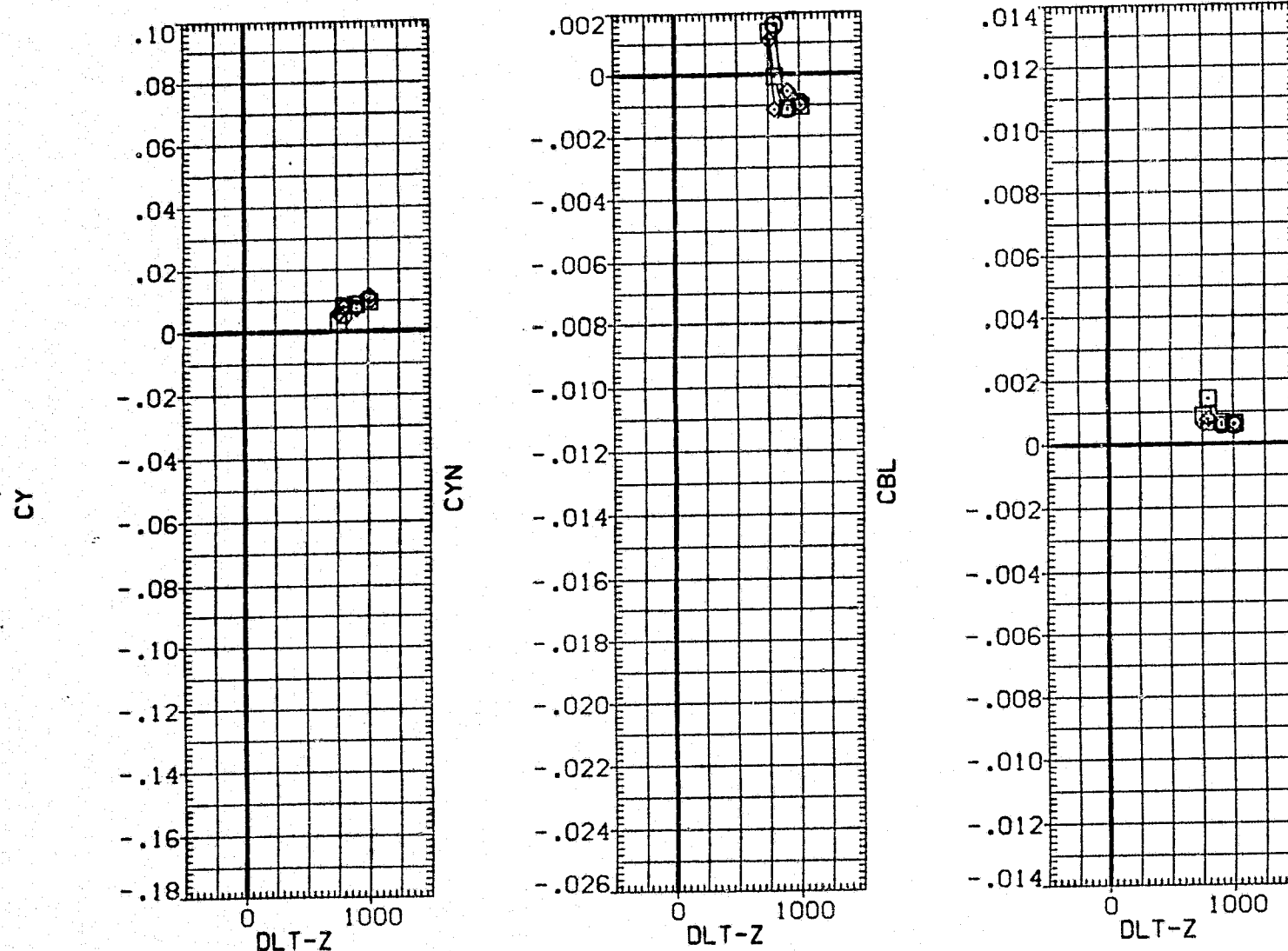


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR376)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.572	60.000	ALPHA	-5.000
□	200.530	.000	DLTALF	.000
		3.000	MACH	7.990
		.000	ELEVON	.000
		19.000	PG	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

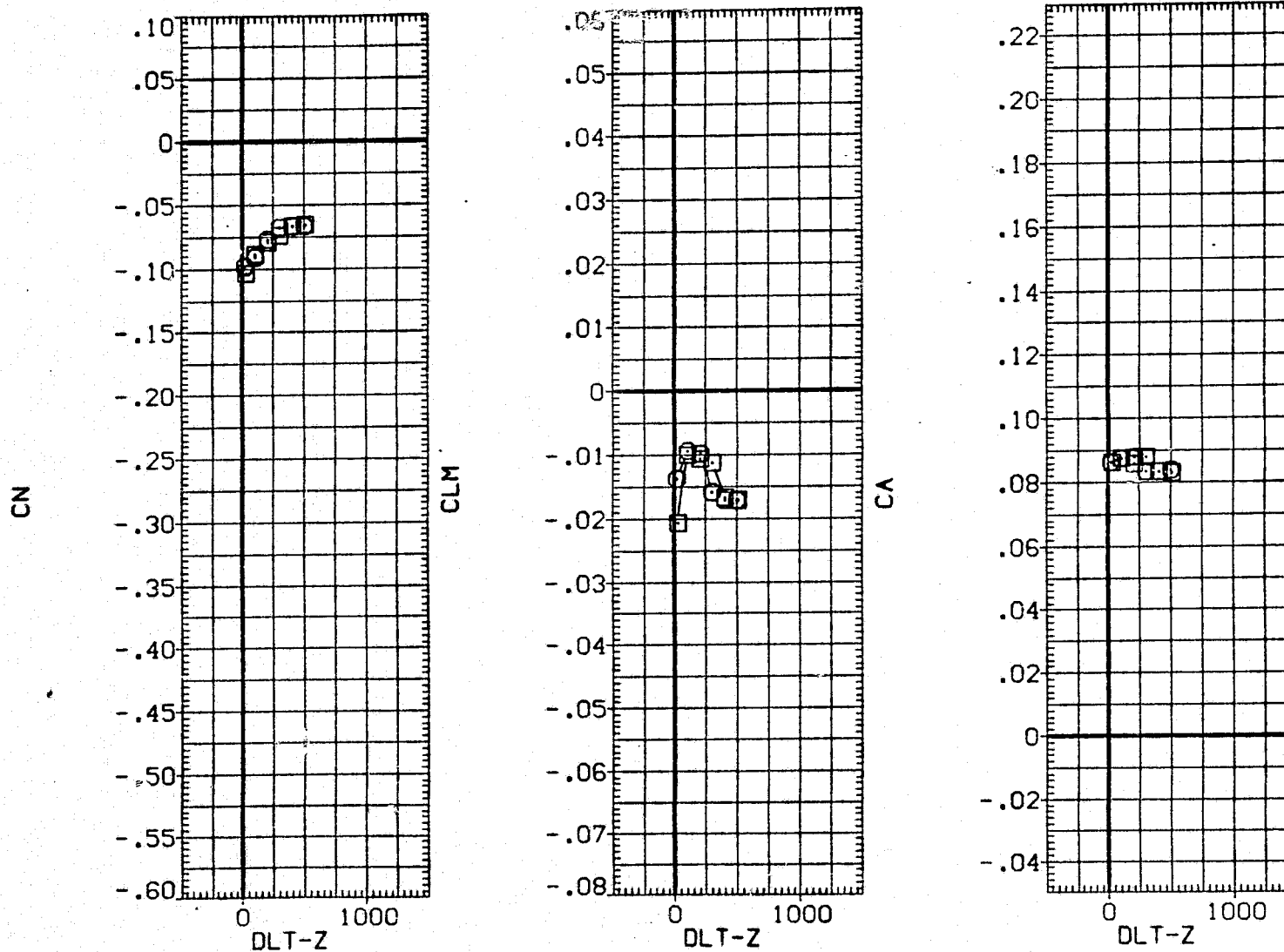


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR376)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.572	BETA	60.000	-5.000	
□	200.530	DLTSTA	.000	DLTALF	.000
		ATLRON	3.000	MACH	7.980
		GRID	.000	ELEVON	.000
			19.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

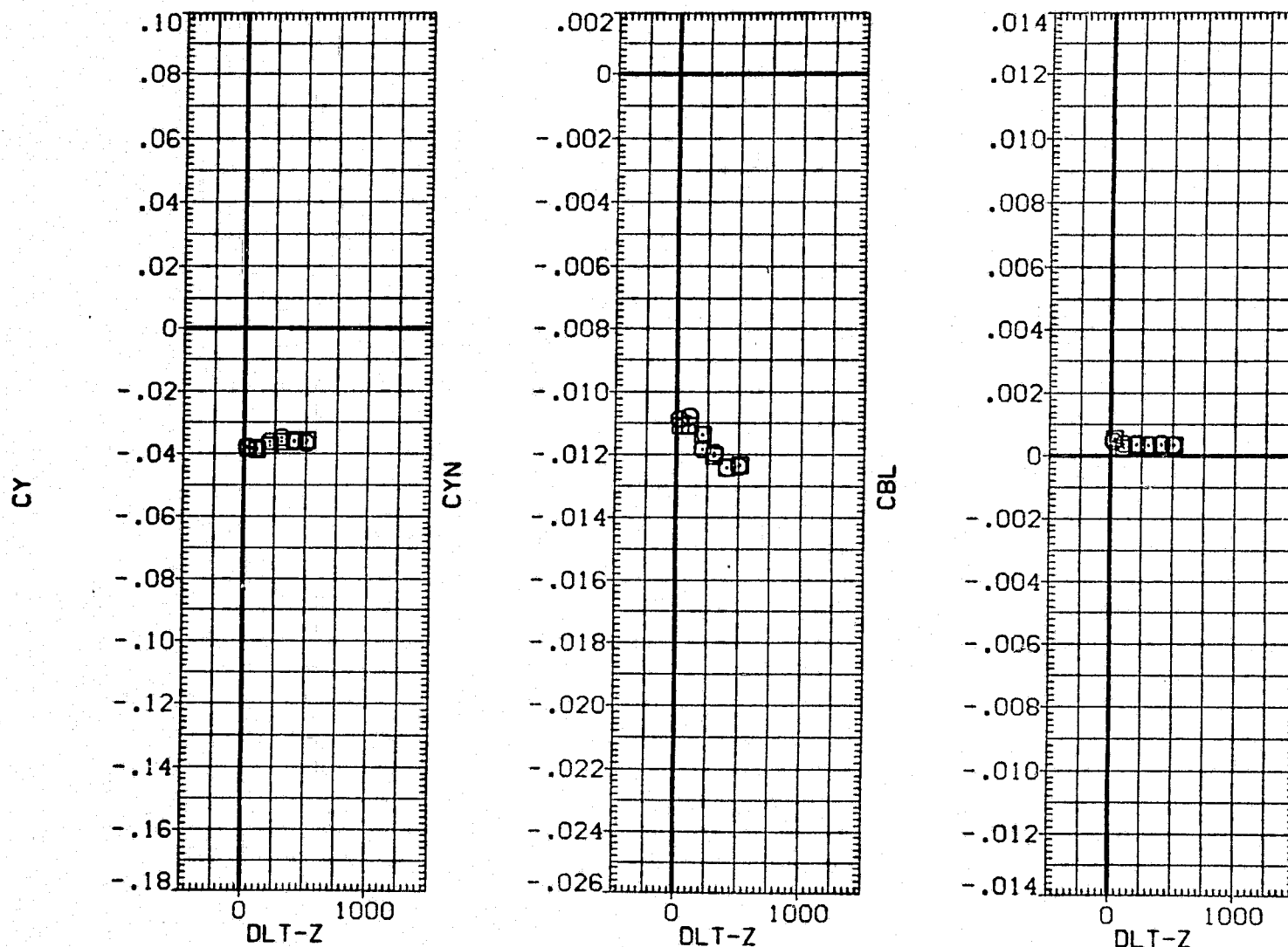


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR377)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.502	60.000	ALPHA	-5.000
□	200.510	.000	DLTALF	-10.000
◇	400.480	3.000	MACH	7.980
		.000	ELEVON	.000
		19.000	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

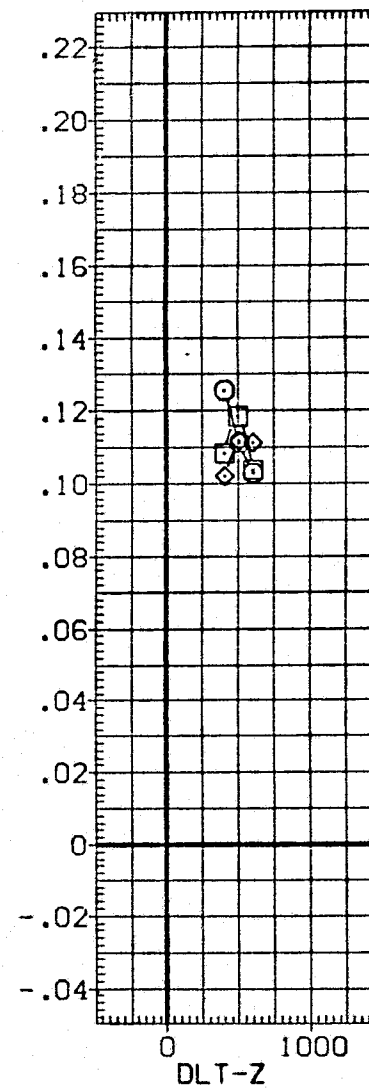
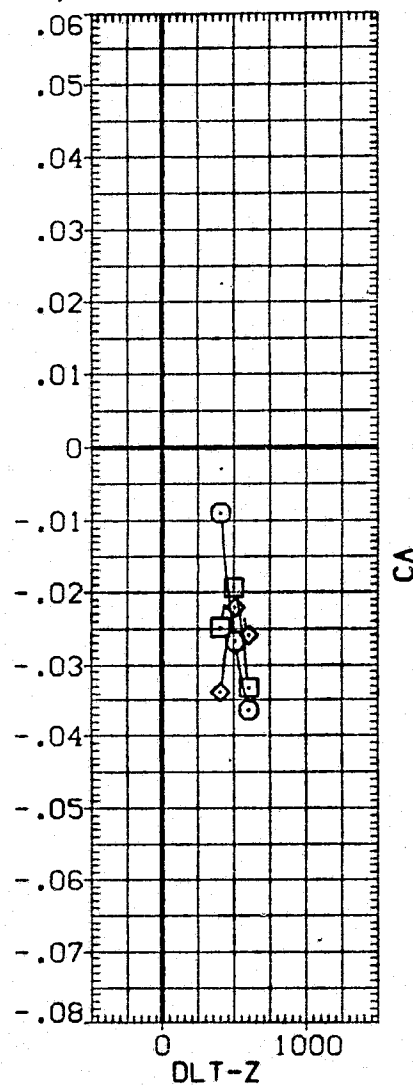
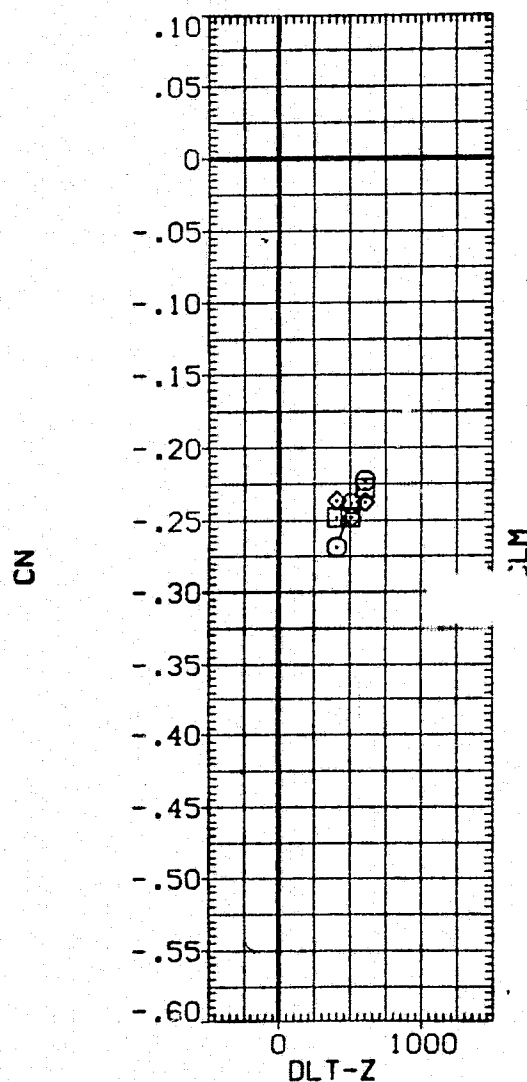


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR377)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES
○	.502	60.000	ALPHA -5.000
□	200.510	BETA .000	DLTALF -10.000
◇	400.480	DLTBTA 3.000	MACH 7.980
		AILRON .000	ELEVON .000
		GRID 19.000	P0 300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

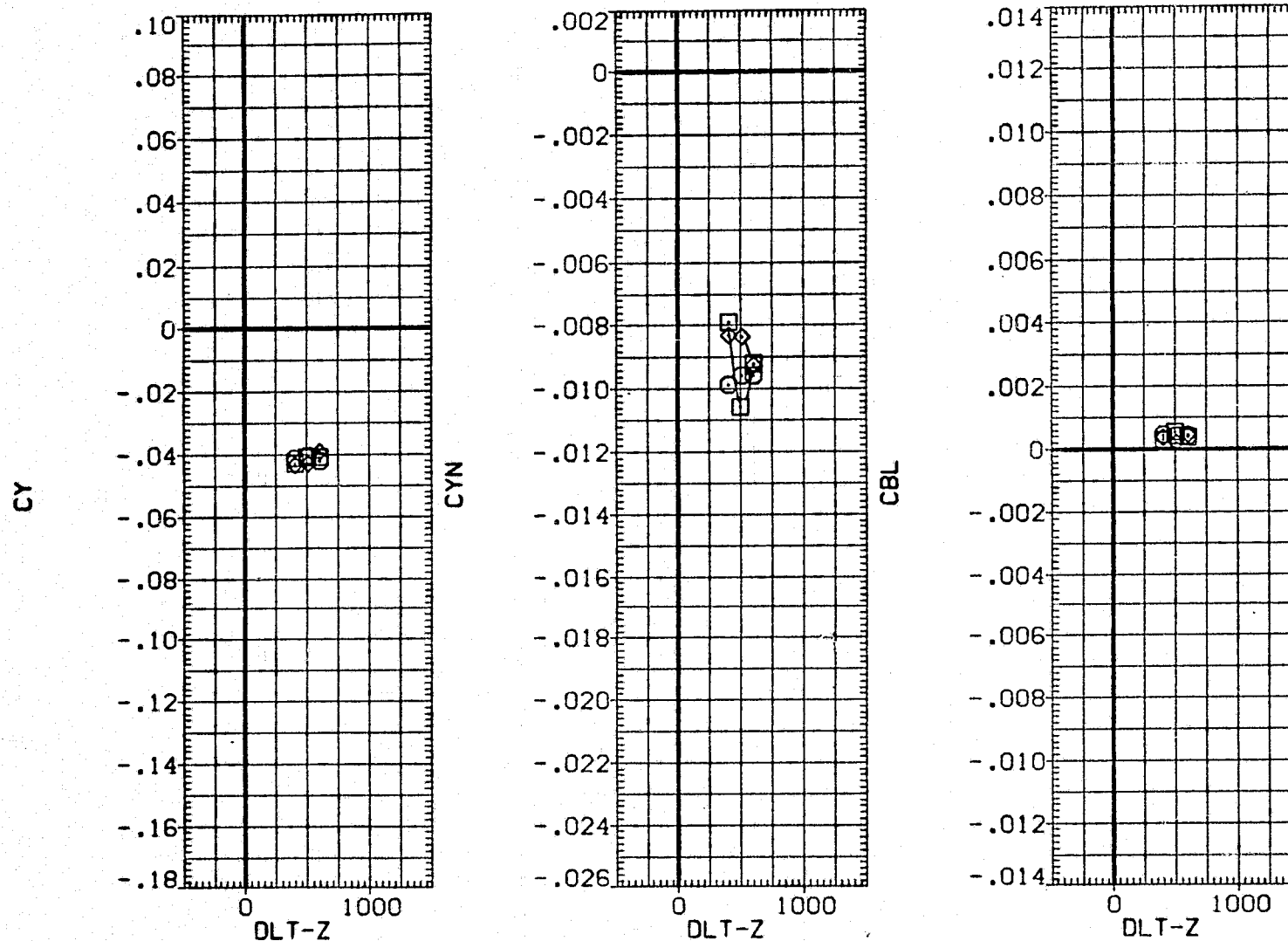


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR379)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.465		60.000	-5.000	
□	200.440	BETA	.000	-20.000	
◇	400.440	DLTBTA	3.000	MACH	7.980
		AIRLON	.000	ELEVON	.000
		GRID	19.000	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

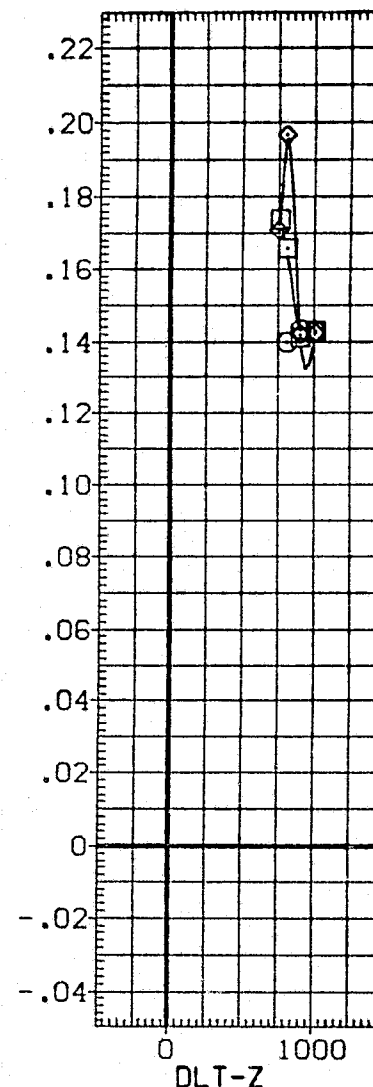
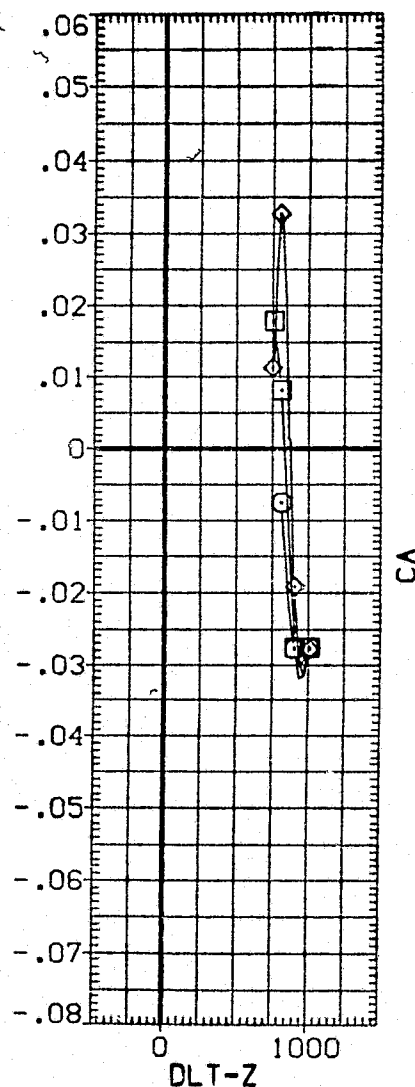
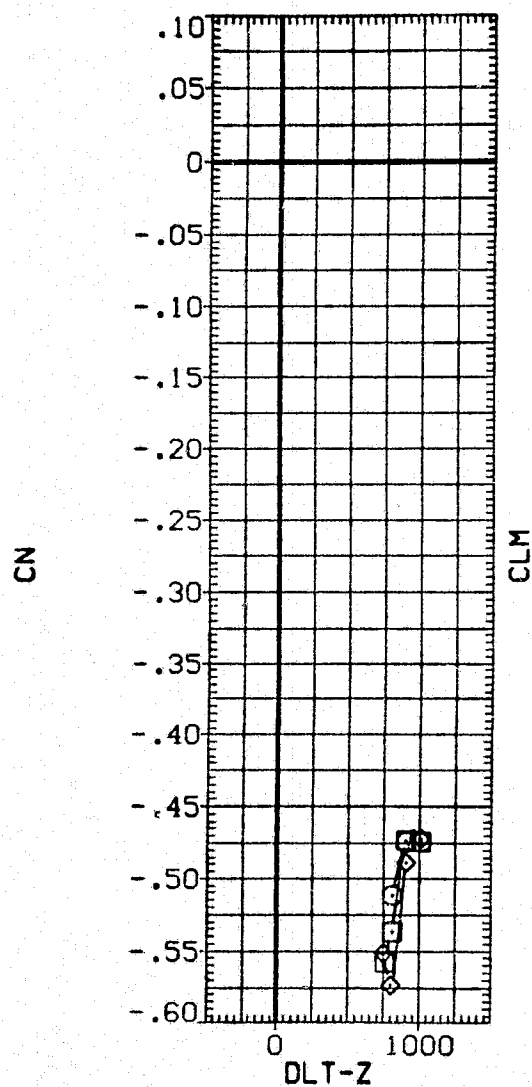


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR379)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
◇	.485	60.000	ALPHA	-5.000
□	200.440	BETA	DLTALF	-20.000
◇	400.440	DLTBTA	MACH	7.980
		AILRON	ELEVON	.000
		GRID	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

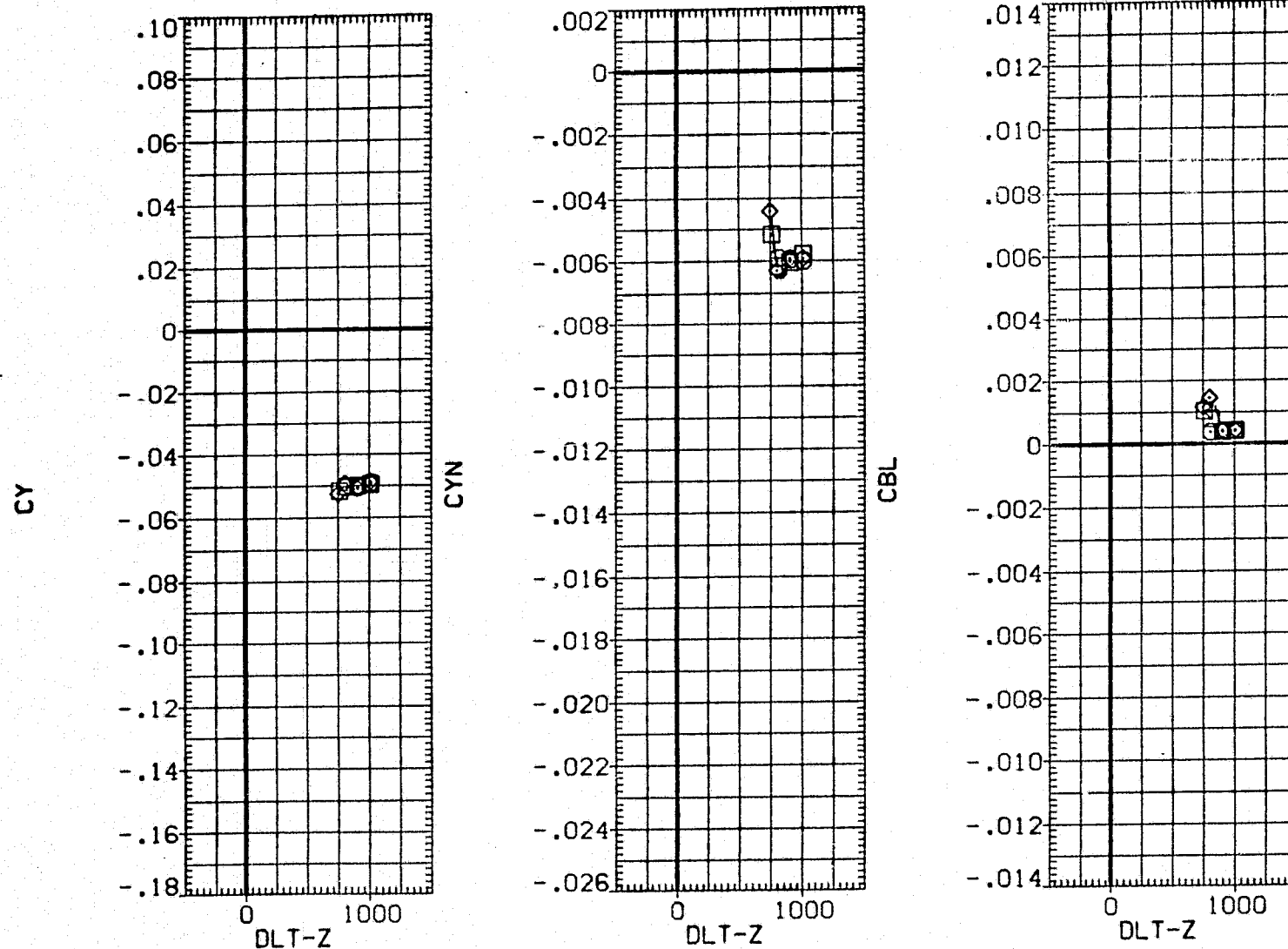


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR361)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.526	60.000	DLTALF	-5.000	
□	200.450	3.000	MACH	.000	
		.000	ELEVON	7.980	
		.000	PO	.000	
		18.000		420.000	

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

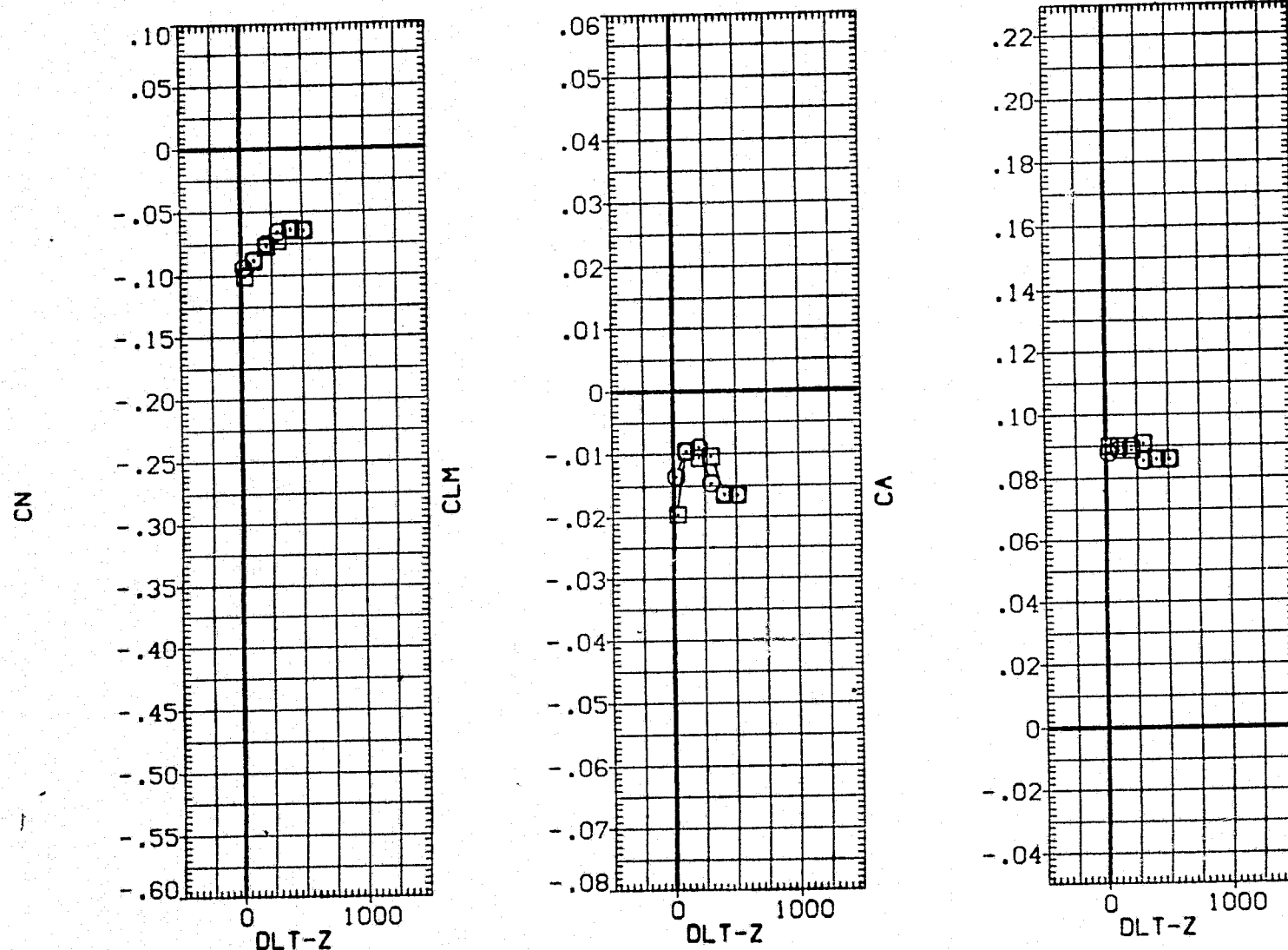


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR361)

SYMBOL
□ ○

DLT-X
.526
200.450

DLT-Y
BETA
DLTSTA
AILRON
GRID

PARAMETRIC VALUES
60.000
3.000
.000
.000
18.000
ALPHA
DLTALF
MACH
ELEVON
PO

-5.000
.000
7.980
.000
420.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

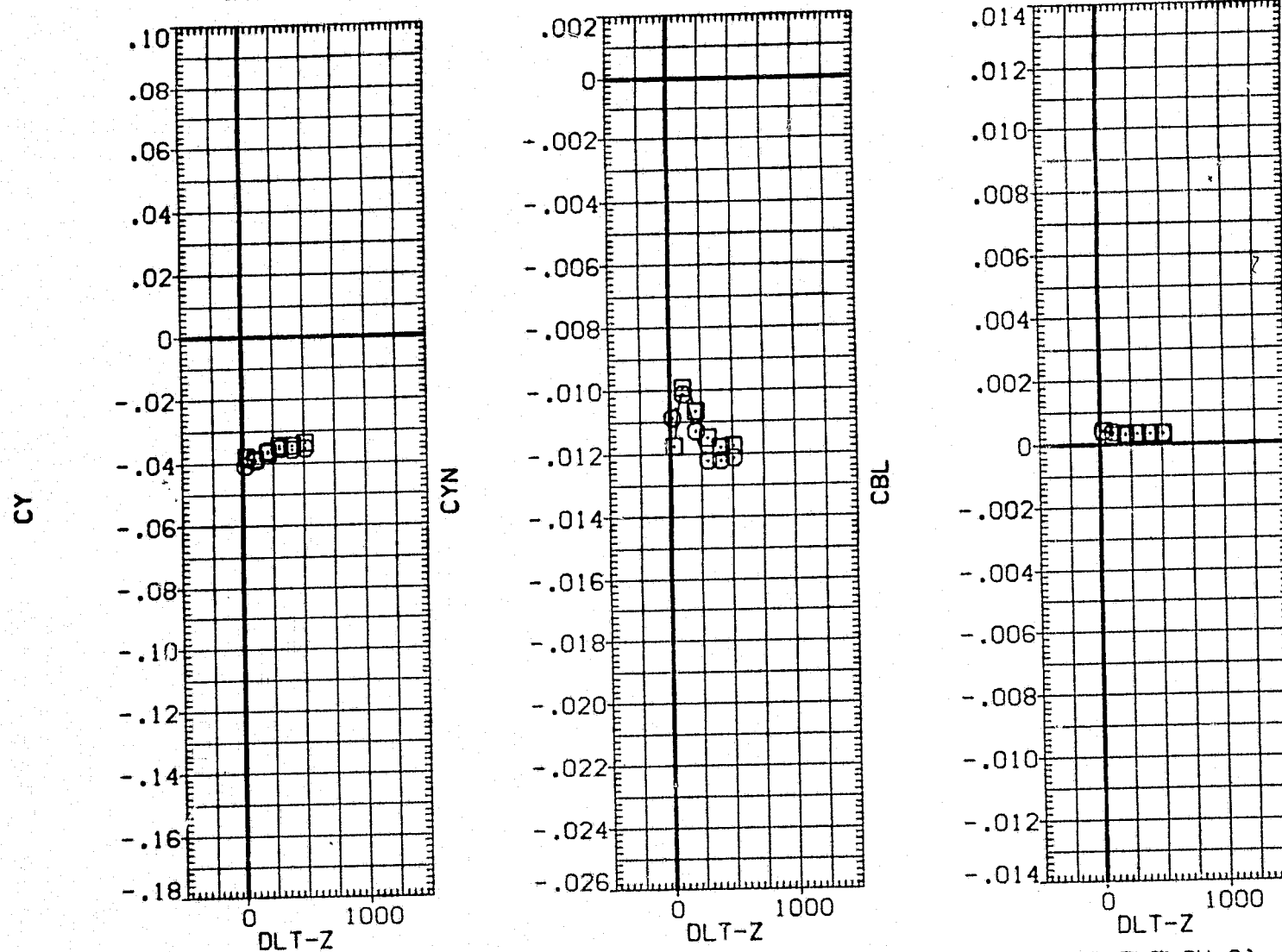


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR362)

SYMBOL
○
□
◇

DLT-X
.435
200.470
400.510

DLT-Y
60.000
BETA
DLTBTA
AILRON
GRID

PARAMETRIC VALUES
60.000
3.000
.000
.000
18.000
ALPHA
DLTALF
MACH
ELEVON
PO

-5.000
-10.000
7.980
.000
420.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

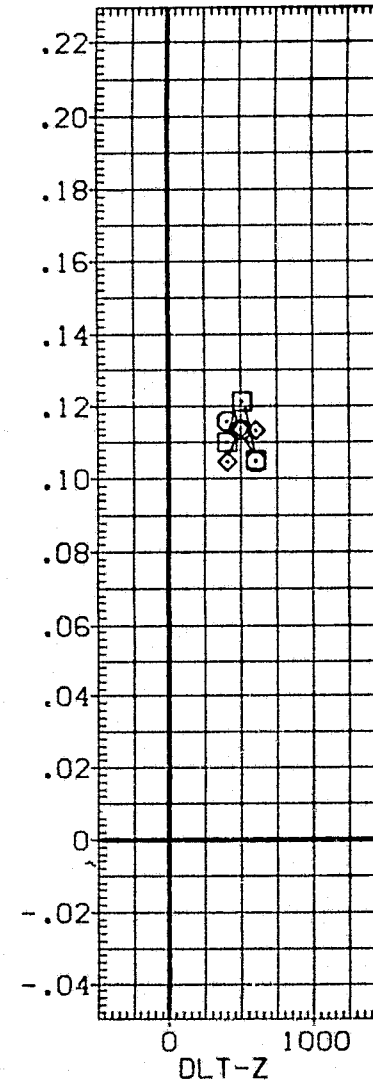
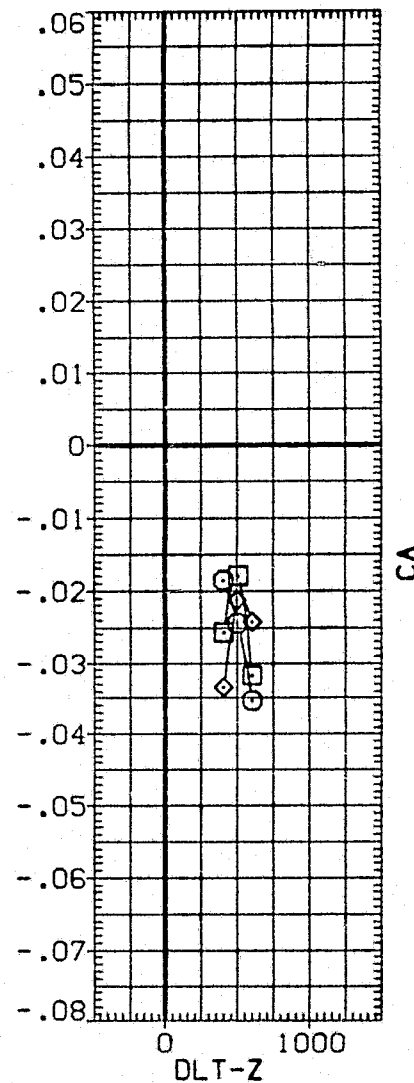
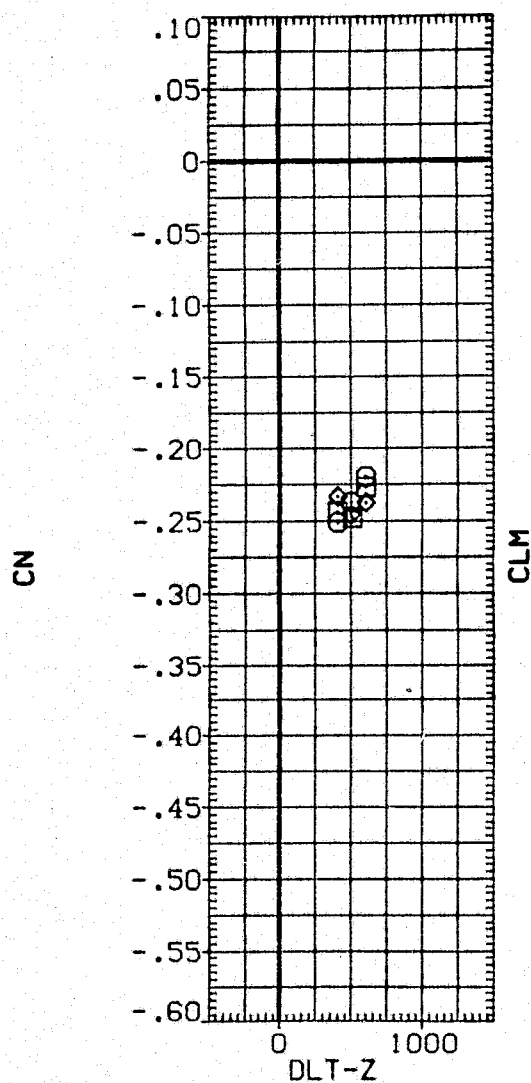


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60,MACH=7.98,ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR362)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.435	BETA	60.000	-5.000
□	200.470	DLTBT	3.000	-10.000
◇	400.510	AIRLON	.000	7.980
		GRID	18.000	.000
			P0	420.000

REFERENCE INFORMATION	
SREF	2630.0000
LREF	1290.3000
BREF	1290.3000
XMRP	1360.1000
YMRP	.0000
ZMRP	416.4000
SCALE	.0100
SG.FT.	IN.
IN.	IN. XT
IN.	IN. YT
IN.	IN. ZT

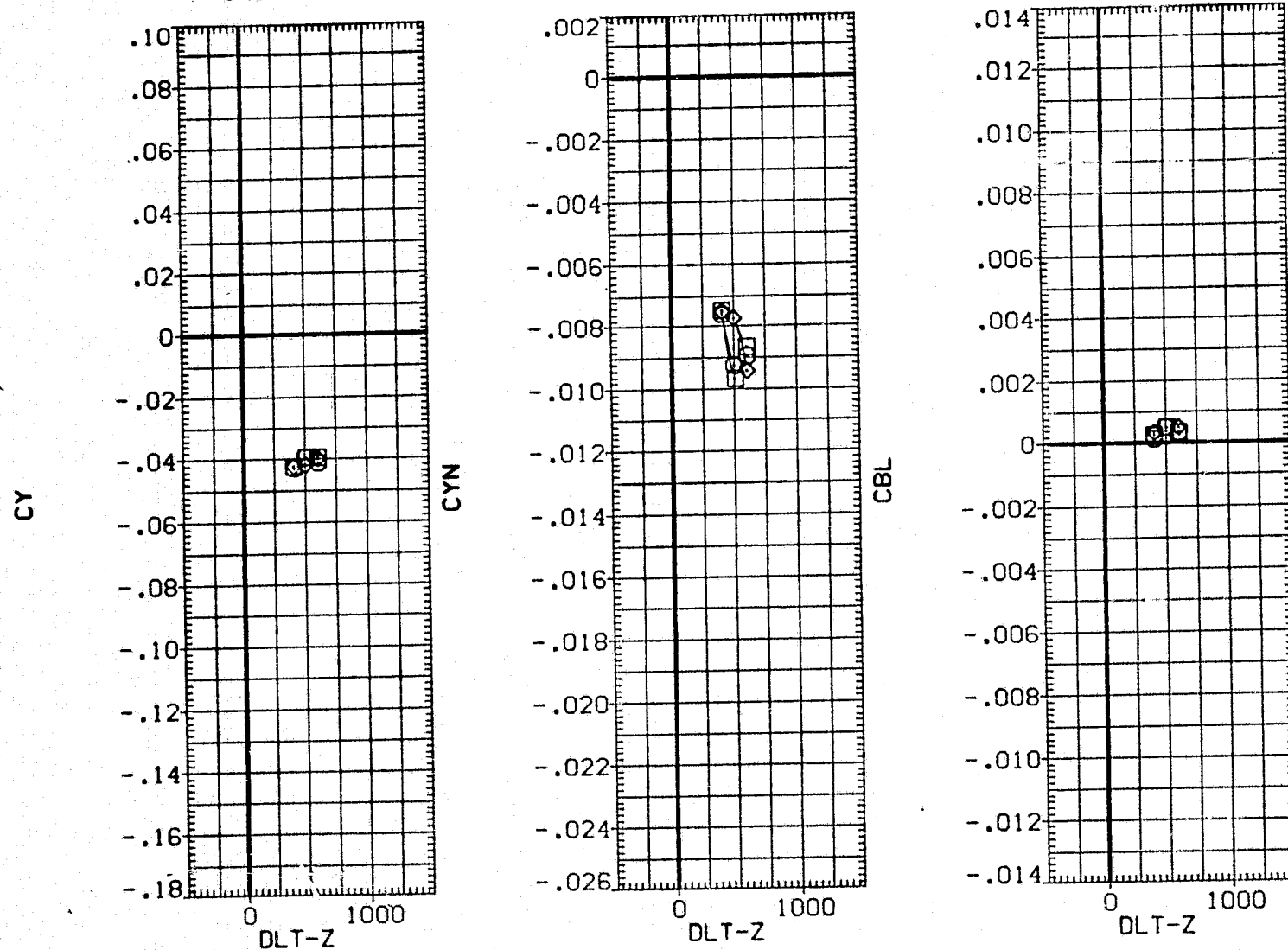


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR364)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.295		60.000	-5.000
□	200.490	BETA	3.000	DLTALF -20.000
◇	400.470	DLTBTA	.000	MACH 7.980
		AILRON	.000	ELEVON .000
		GRID	18.000	PG 370.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

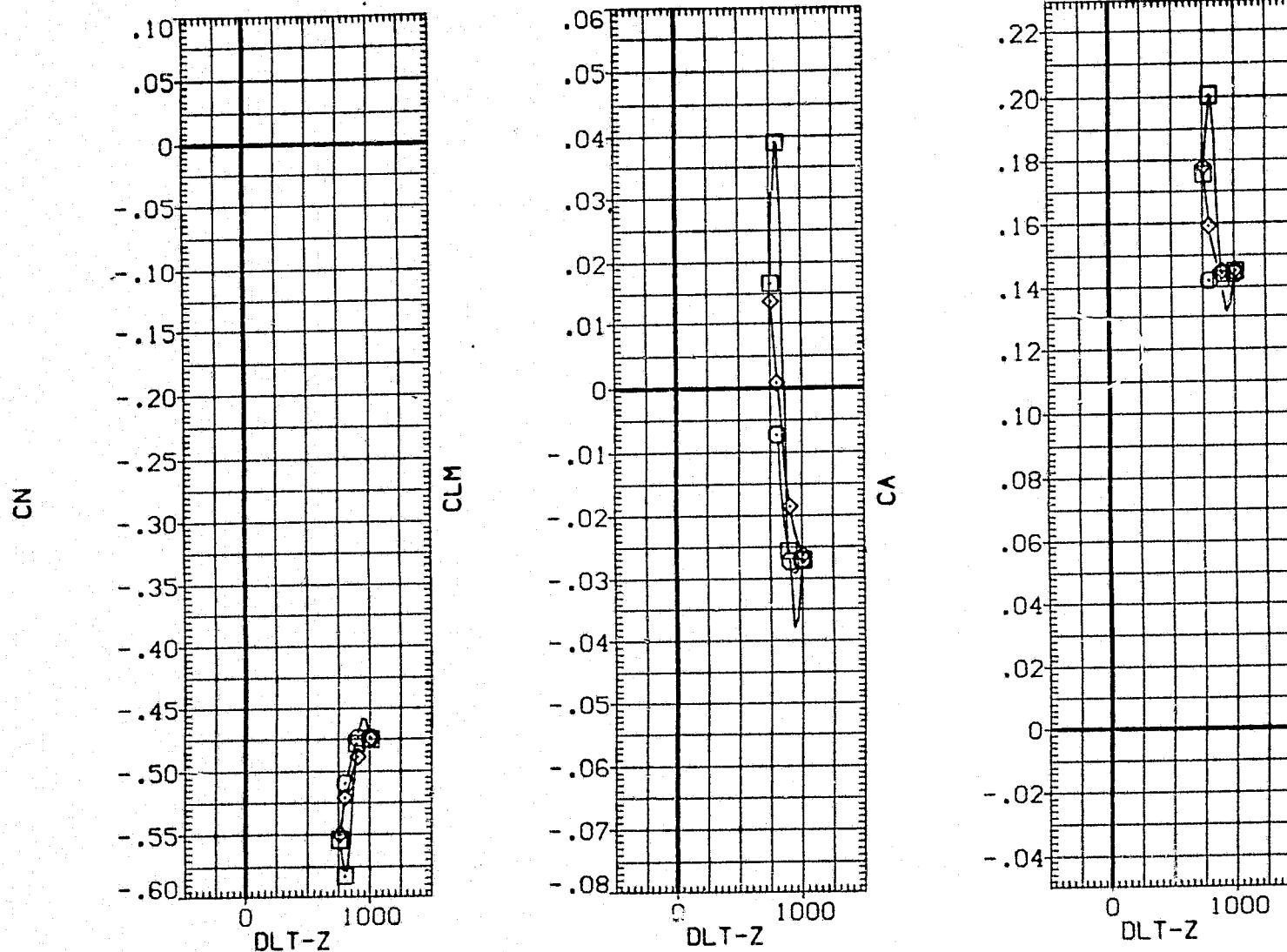


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR364)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.295	DLT-Y	60.000	ALPHA
□	200.490	BETA	3.000	DLTALF
◇	400.470	DLTBTA	.000	MACH
		ATLRON	.000	ELEVON
		GRID	18.000	P0
				370.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1350.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

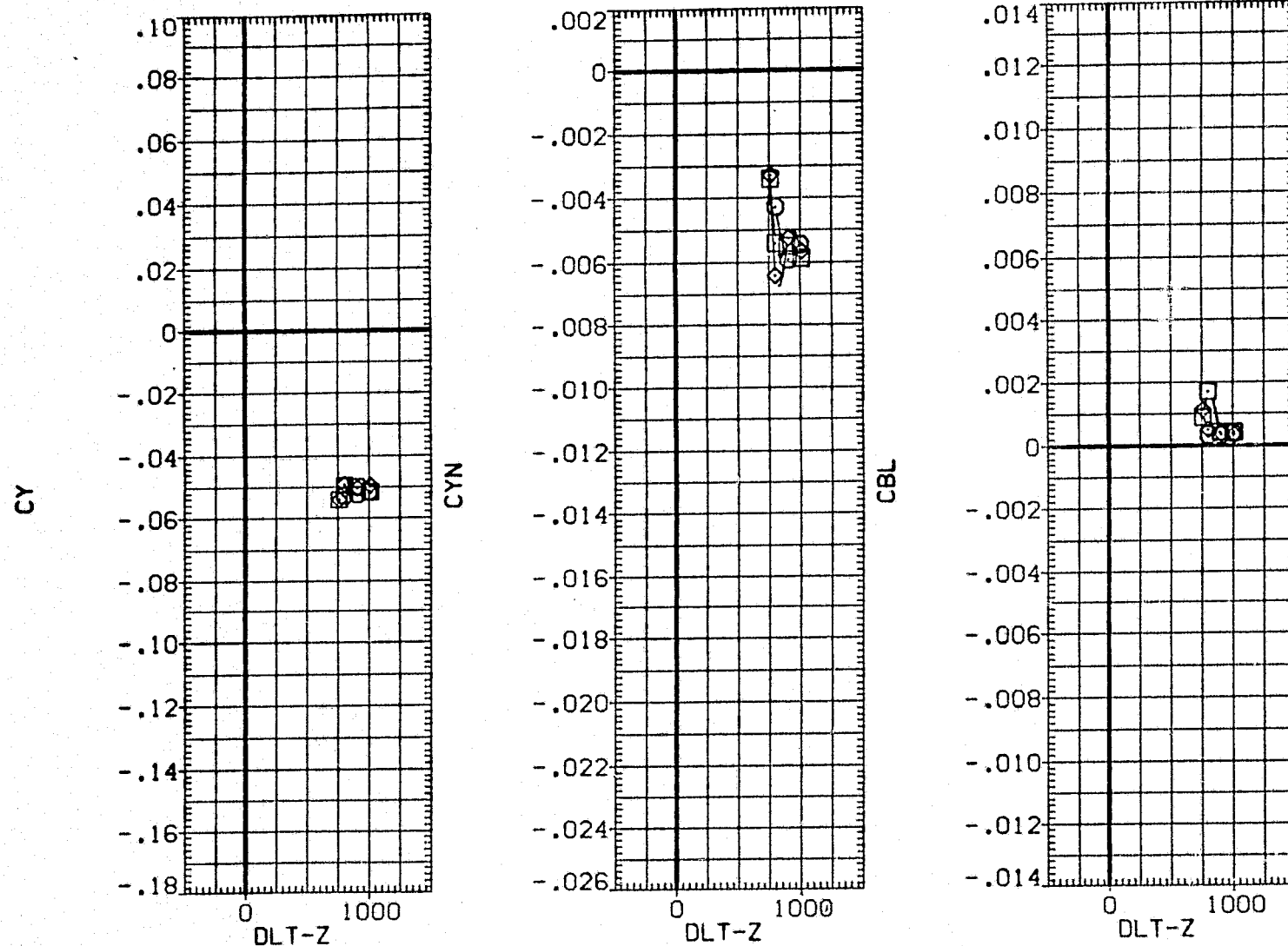


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR365)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.489	60.000	DLTALF	-5.000
□	200.520	3.000	MACH	.000
		3.000	ELEVON	7.980
		.000	P3	.000
		18.000		300.000

REFERENCE INFORMATION		
SREF	2690.0000	SO. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

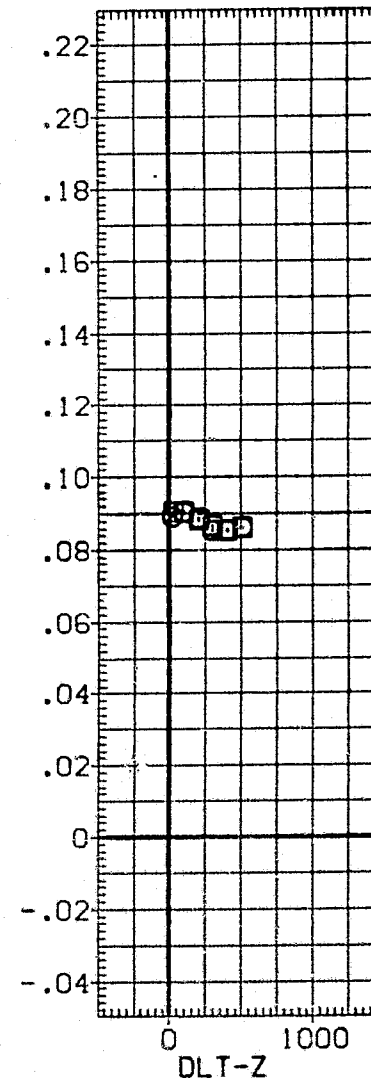
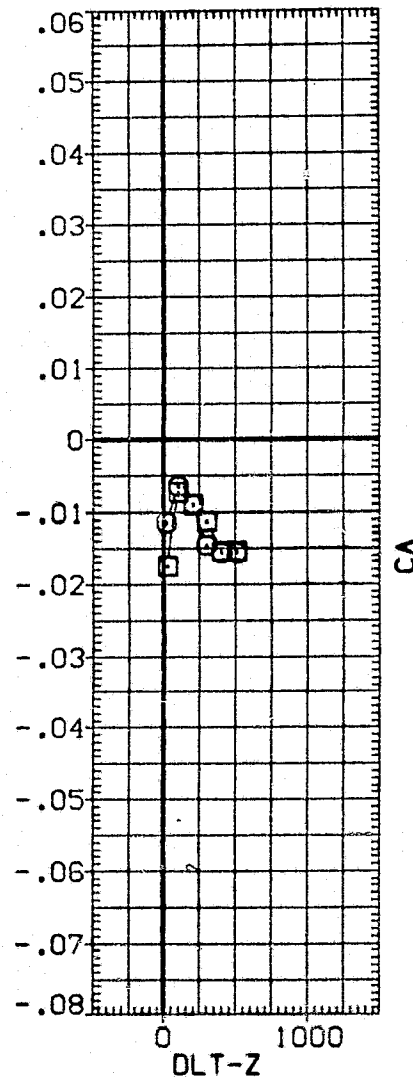
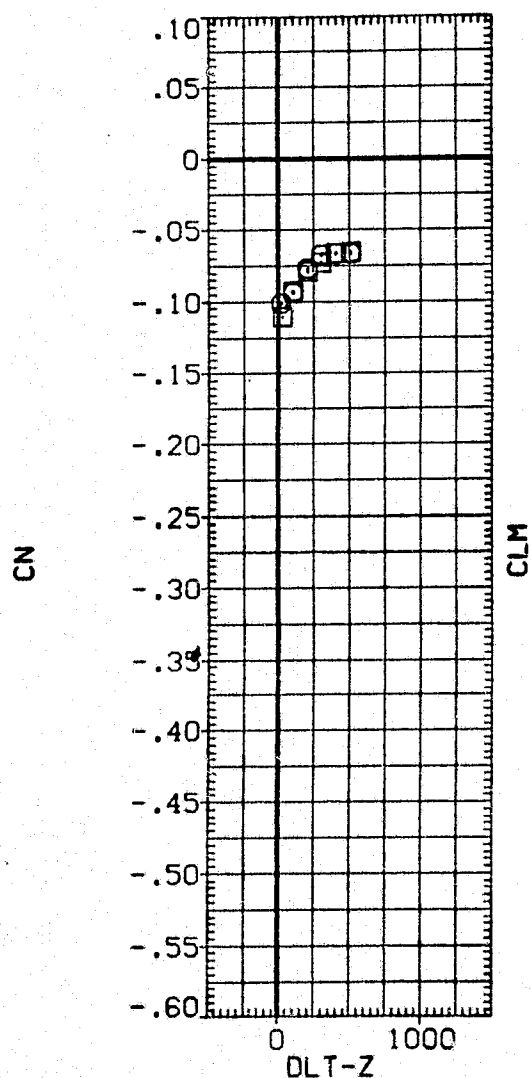


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR365)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.489	60.000	ALPHA	-5.000	
□	200.520	BETA	DLTALF	.000	
		DLTBTA	MACH	7.980	
		AILRON	ELEVON	.000	
		GRID	P0	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

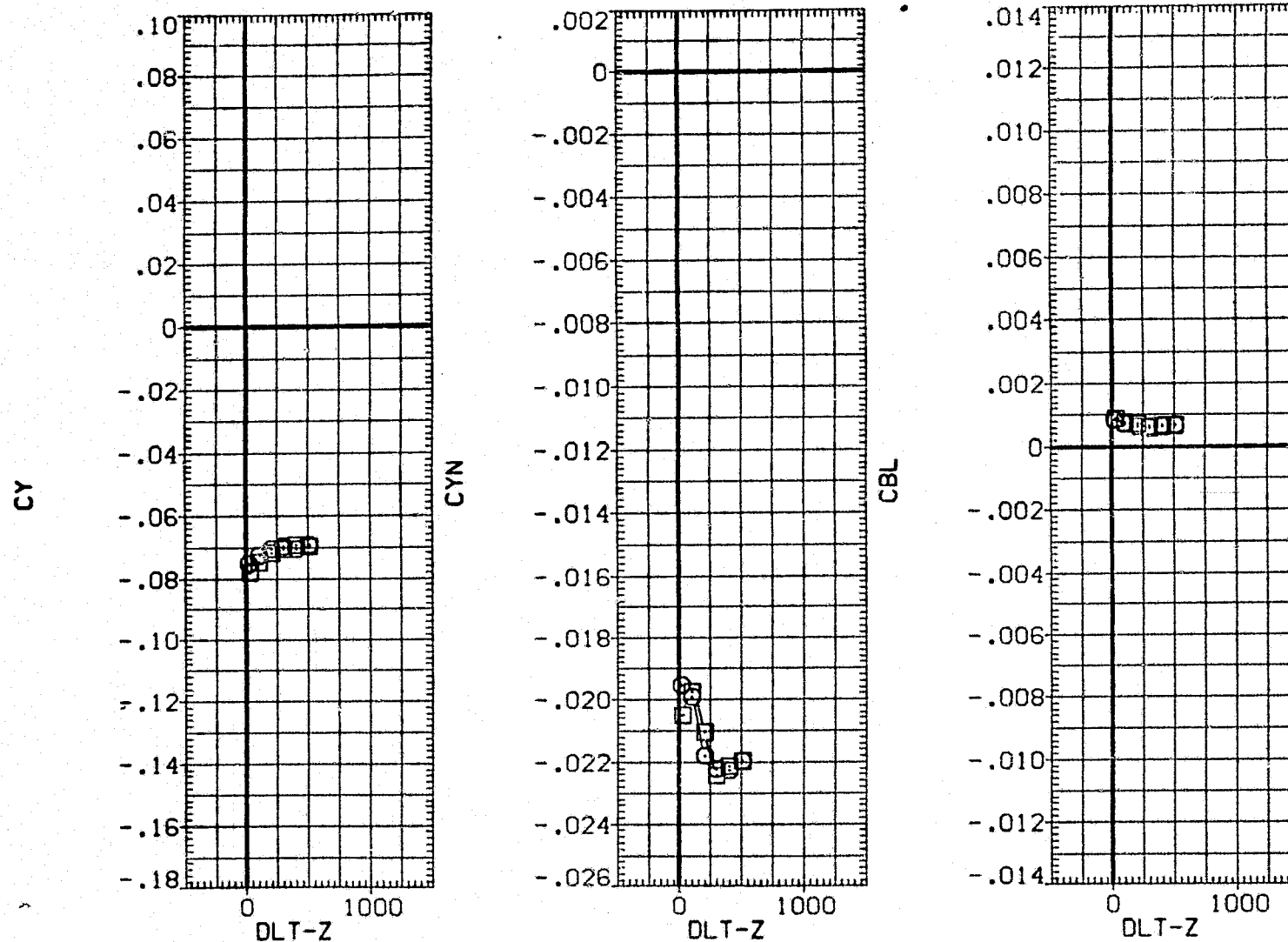


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS ($\Delta Y=60$, $MACH=7.98$, $ELEVON=0$)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR366)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.505	60.000	ALPHA	-5.000	
□	200.480	BETA	DLTALF	-10.000	
◇	400.490	DLTBTA	MACH	7.980	
		AILRON	ELEVON	.000	
		GRID	PG	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

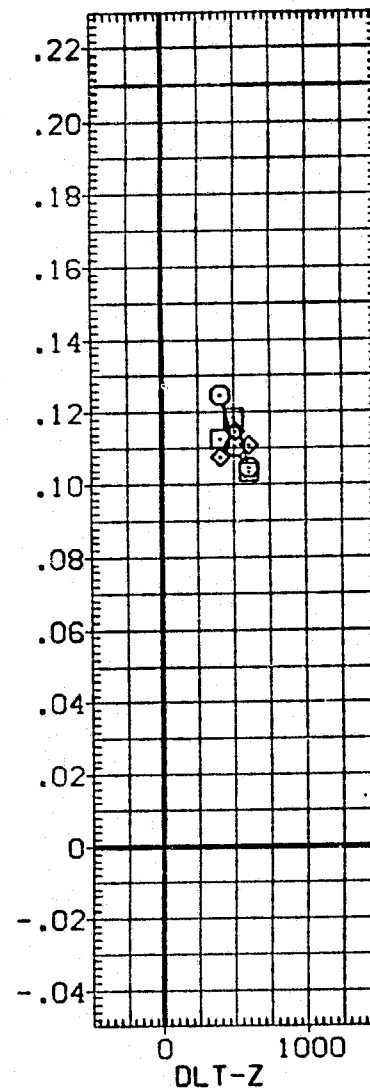
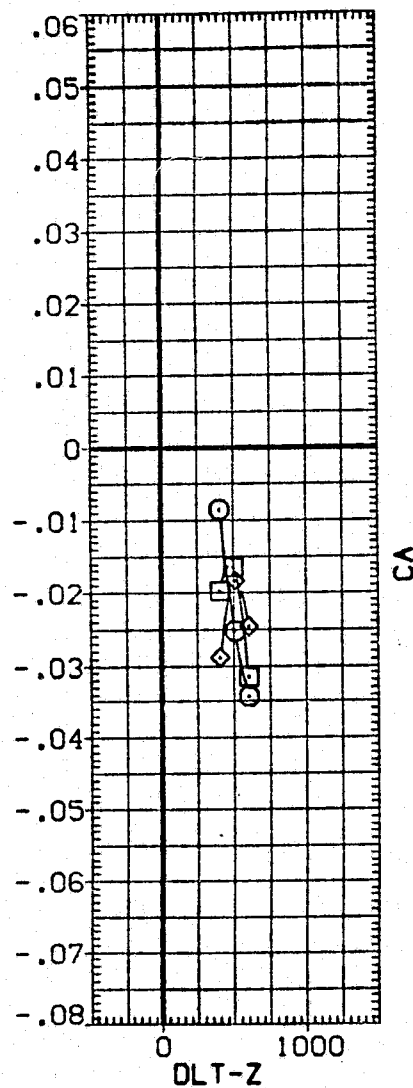
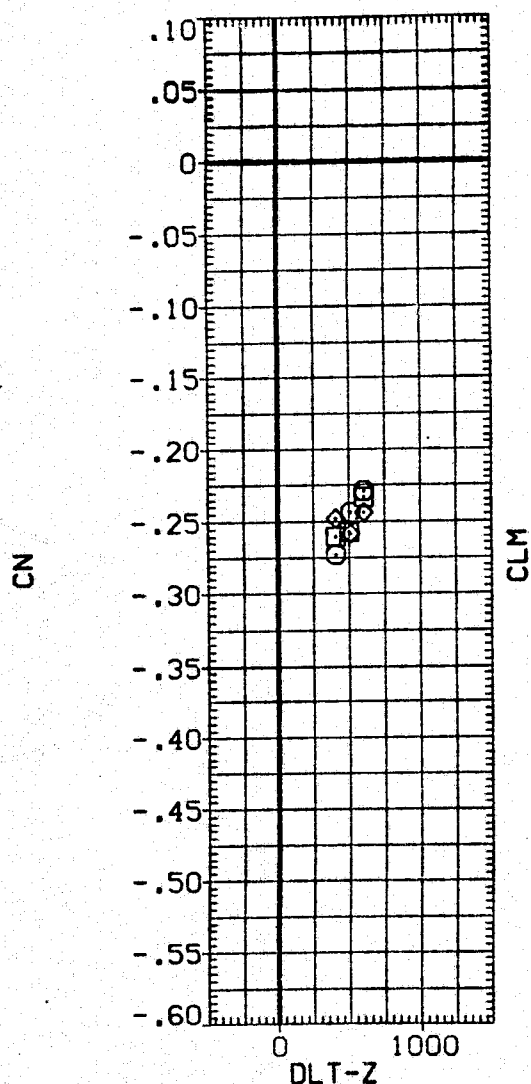


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR366)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.505		60.000	ALPHA	-5.000
	200.480		3.000	DLTALF	-10.000
	400.490		3.000	MACH	7.980
			.000	ELEVON	.000
		GRID	18.000	PG	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

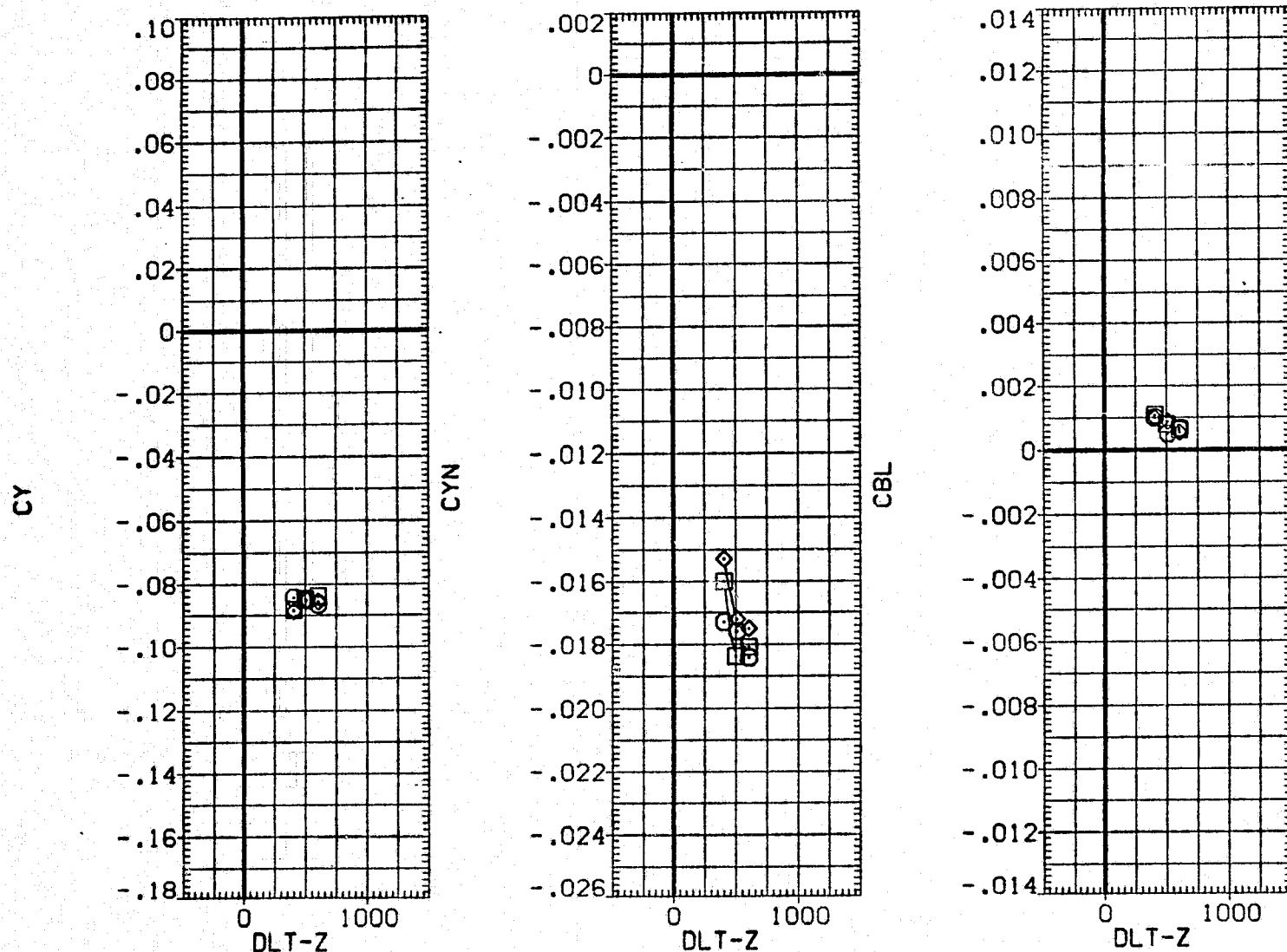


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR368)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	DLT-Y	ALPHA	DLTALF	MACH
○	200.420	60.000	3.000	-5.000	-20.000	7.980
		BETA	3.000			
		DLTBTA	.000			
		ATLRON	18.000			
		GRID				

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

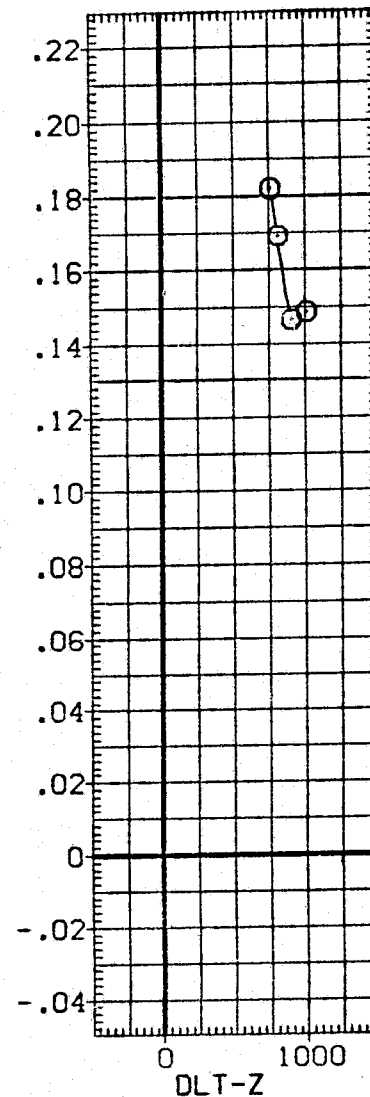
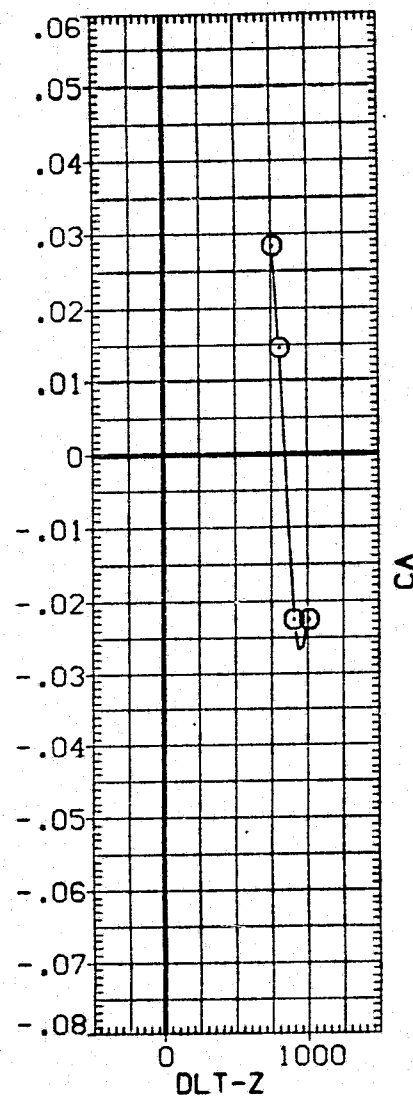
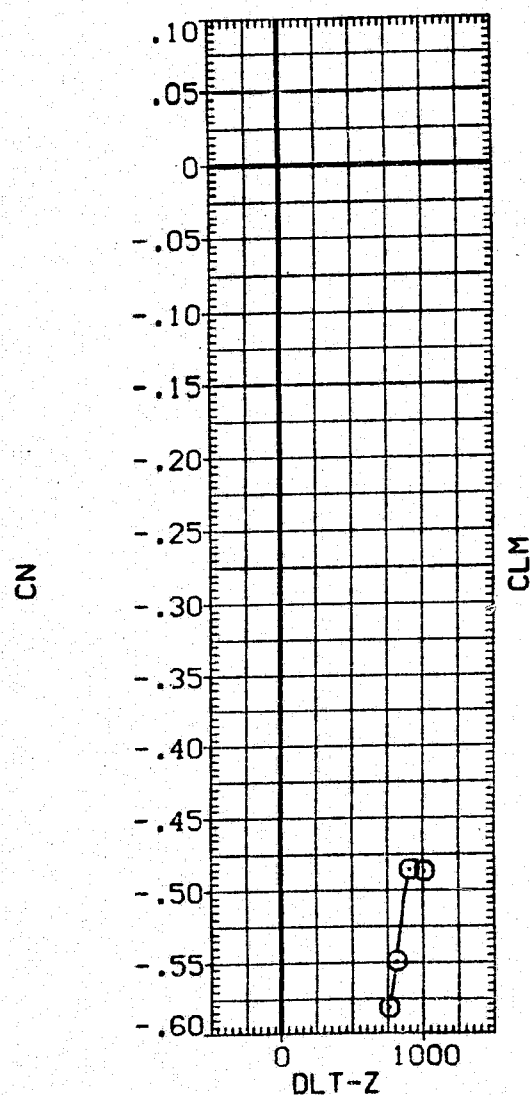


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR368)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	200.420	DLT-Y	60.000	ALPHA	-5.000	
		BETA	3.000	DLTALF	-20.000	
		DLTBTA	3.000	MACH	7.980	
		AILRON	.000	ELEVON	.000	
		GRID	18.000	PG	350.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

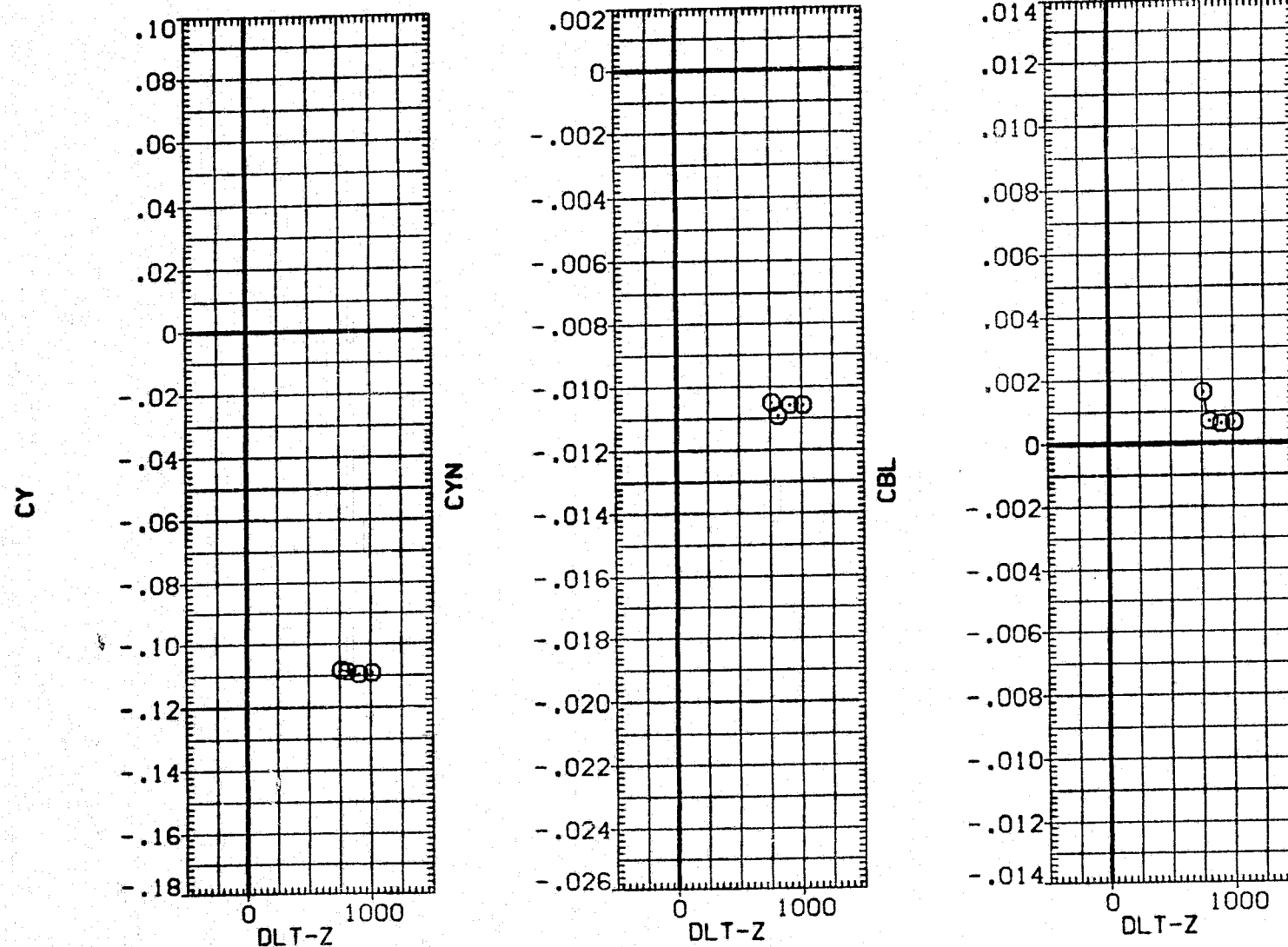


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR369)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.453	BETA	60.000	ALPHA
□	400.410	DLTBTA	3.000	DLTALF
		AILRON	3.000	MACH
		GRID	.000	ELEVON
			18.000	PO
				300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

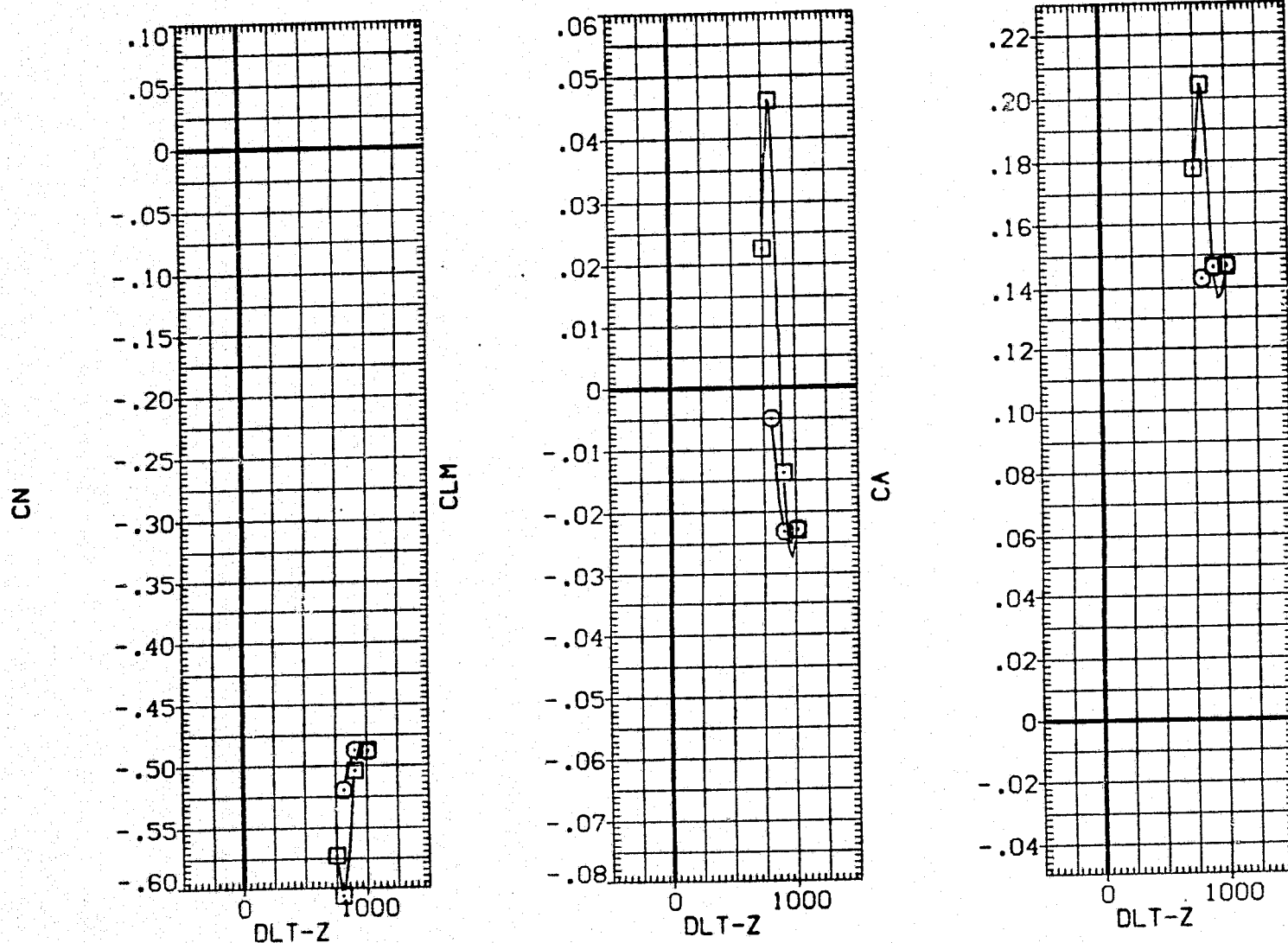


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR369)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.453	DLT-Y	60.000	ALPHA	-5.000
□	400.410	BETA	3.000	DLTALF	-20.000
		DLTBT	3.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	18.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

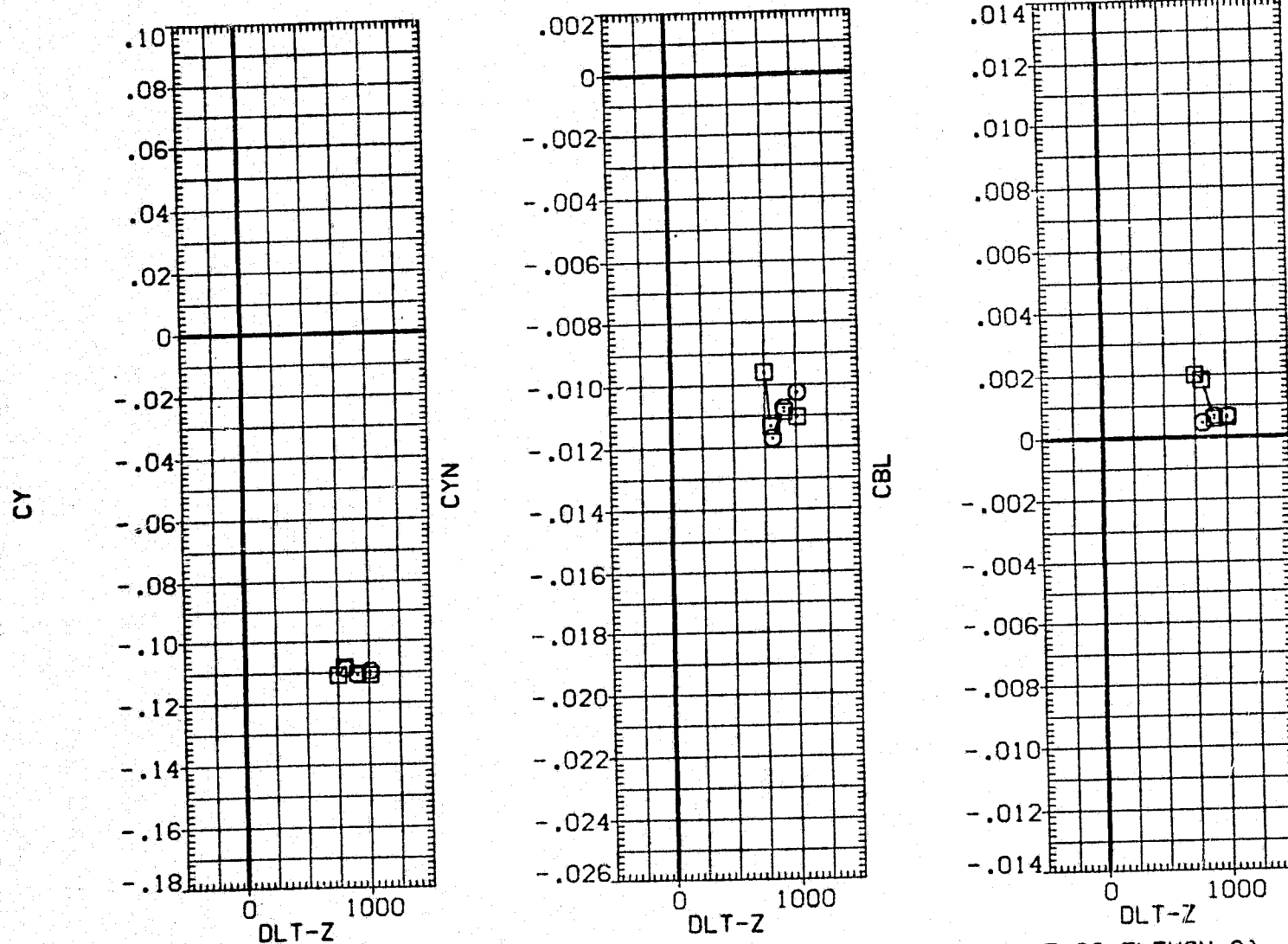


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR370)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	
○	.472	BETA	60.000	ALPHA	-10.000
□	200.420	DLTBT	3.000	DLTALF	.000
		AILRON	.000	MACH	7.980
		GRID	8.000	ELEVON	.000
				PG	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	415.4000	IN. ZT
SCALE	.0100	

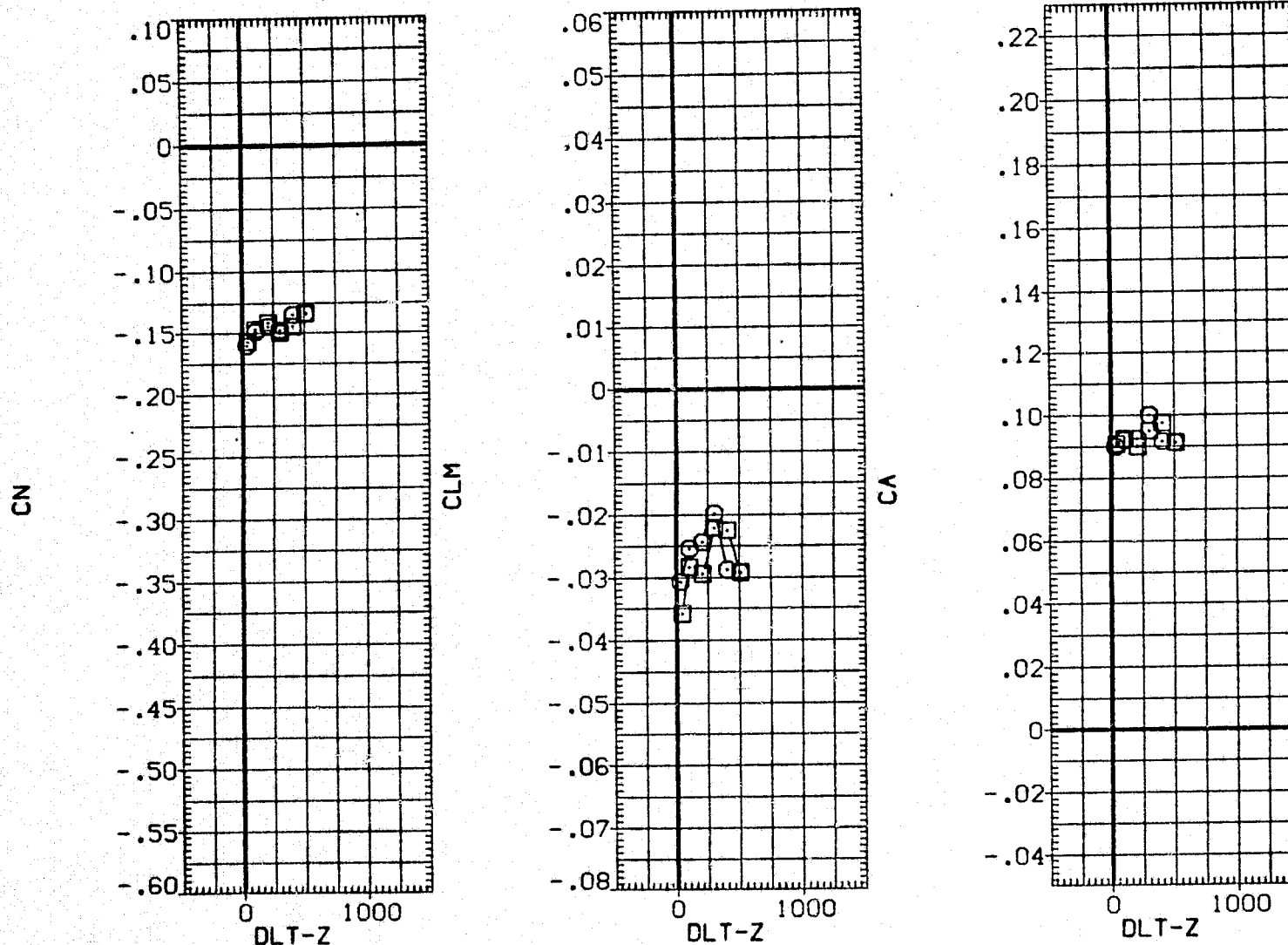


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR370)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
○	.472		60.000	ALPHA	-10.000
□	200.420	BETA	3.000	DLTALF	.000
		DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	8.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1060.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	415.4000	IN. ZT
SCALE	.0100	

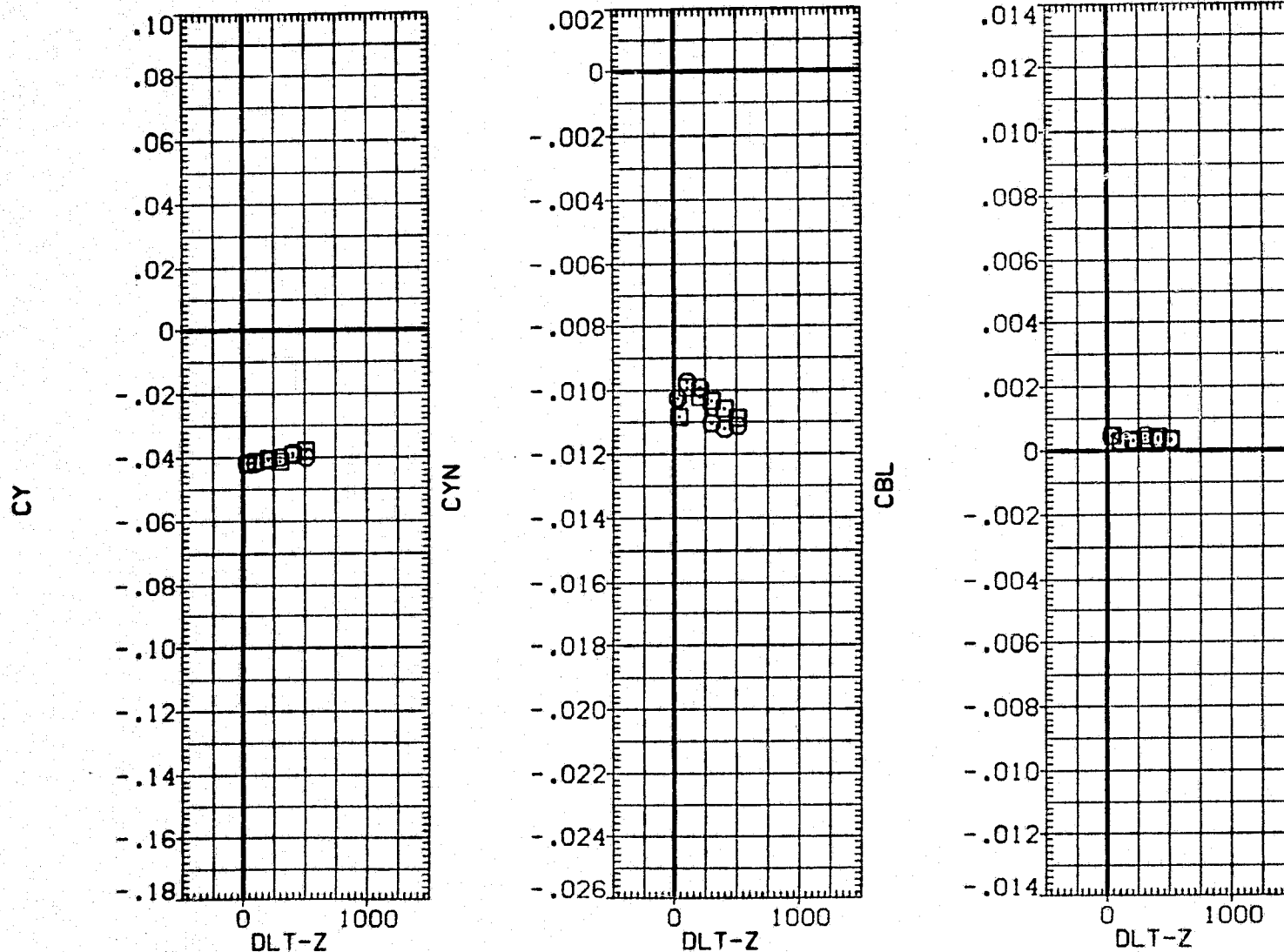


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR371)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.317	60.000	DLTALF	-10.000
□	200.470	3.000	MACH	7.980
◇	400.370	.000	ELEVON	.000
		AILRON	PG	300.000
		GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

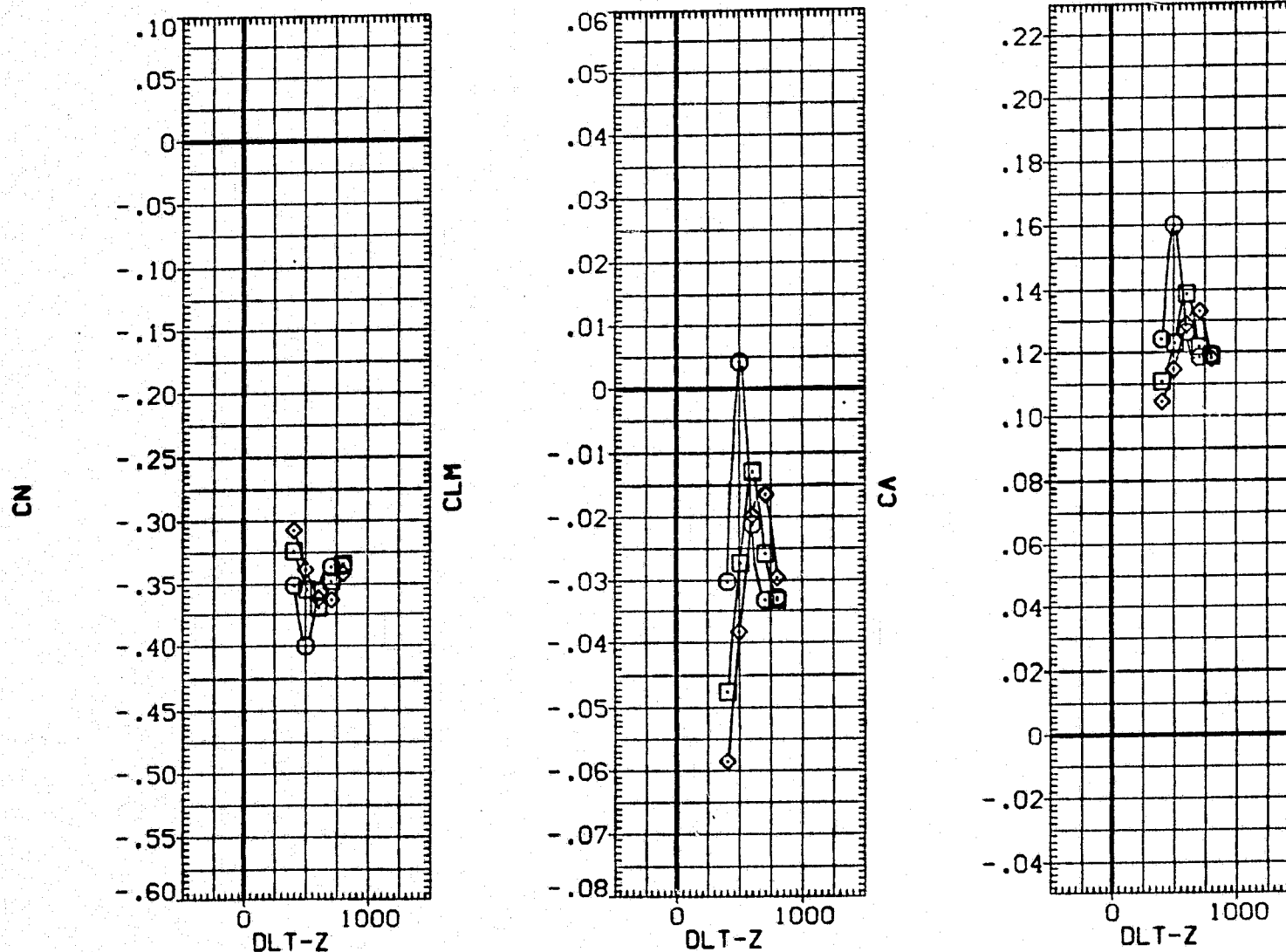


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR371)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.317	60.000	ALPHA	-10.000	
□	200.470	BETA	3.000	DLTALF	-10.000
◇	400.370	DLTBTA	.000	MACH	7.980
		AILRON	.000	ELEVON	.000
		GRID	8.000	PO	300.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

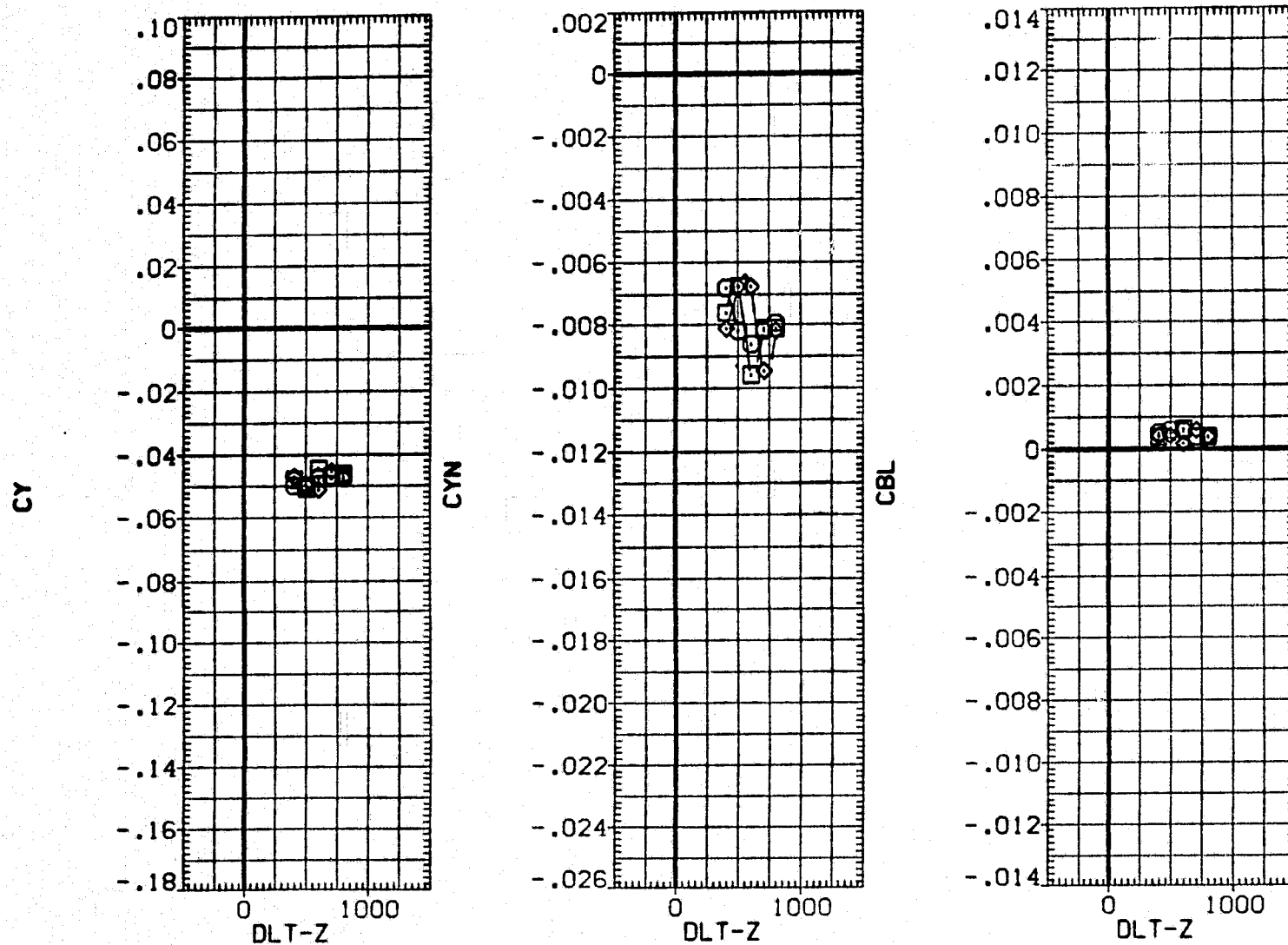


FIGURE 37 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELEVON=0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR343)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.618	60.000	ALPHA	.000
□	200.430	.000	DLTALF	.000
		.000	MACH	7.980
		.000	ELEVON	.000
		16.000	P0	300.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

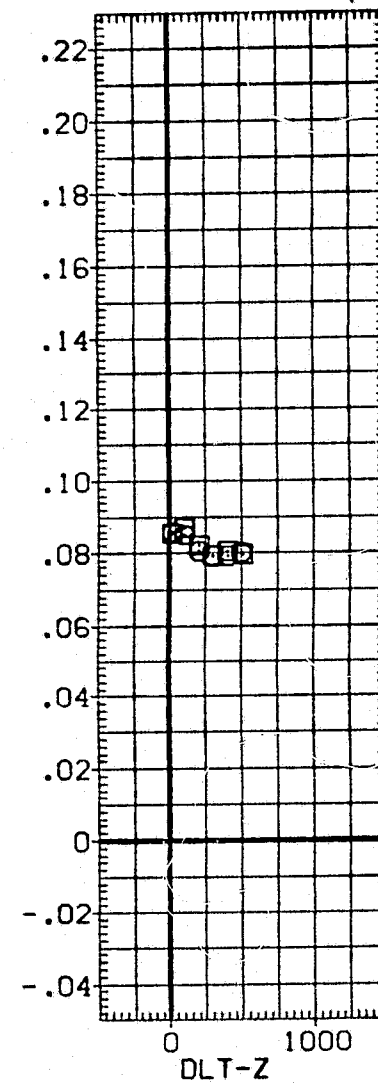
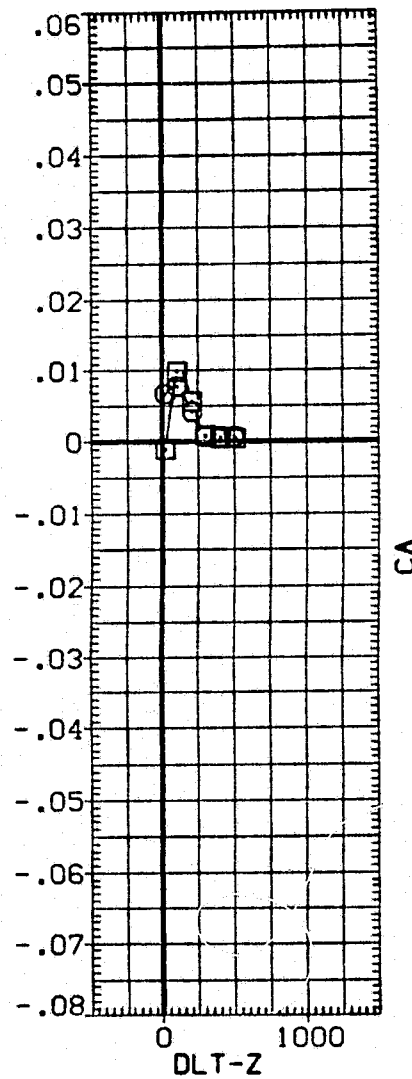
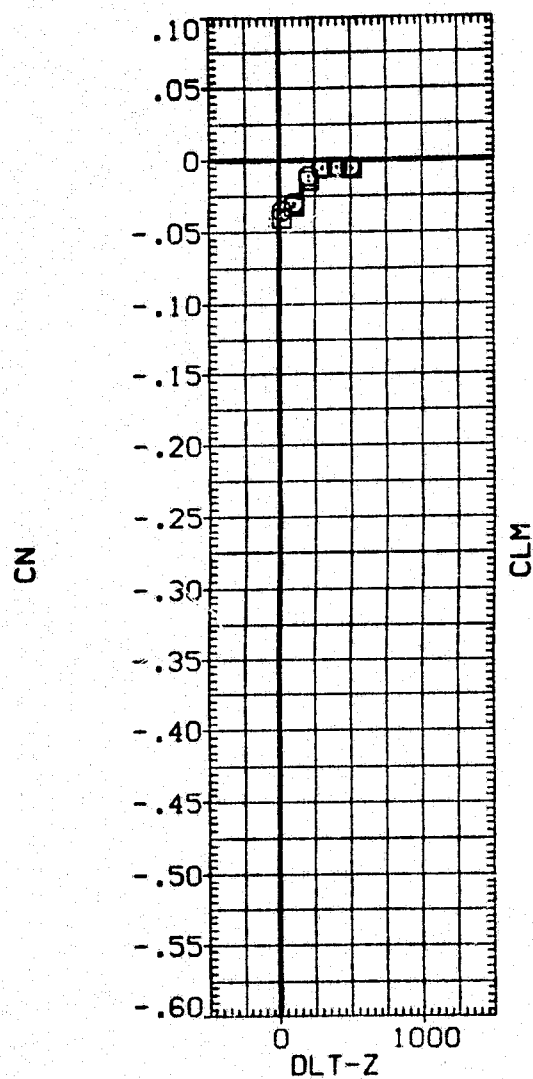


FIGURE 38 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELV=0, LWR P0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR343)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.618	BETA	60.000	.000	
□	200.430	DLTBT	.000	.000	
		AILRON	.000	7.980	
		GRID	16.000	ELEVON	.000
			P0	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

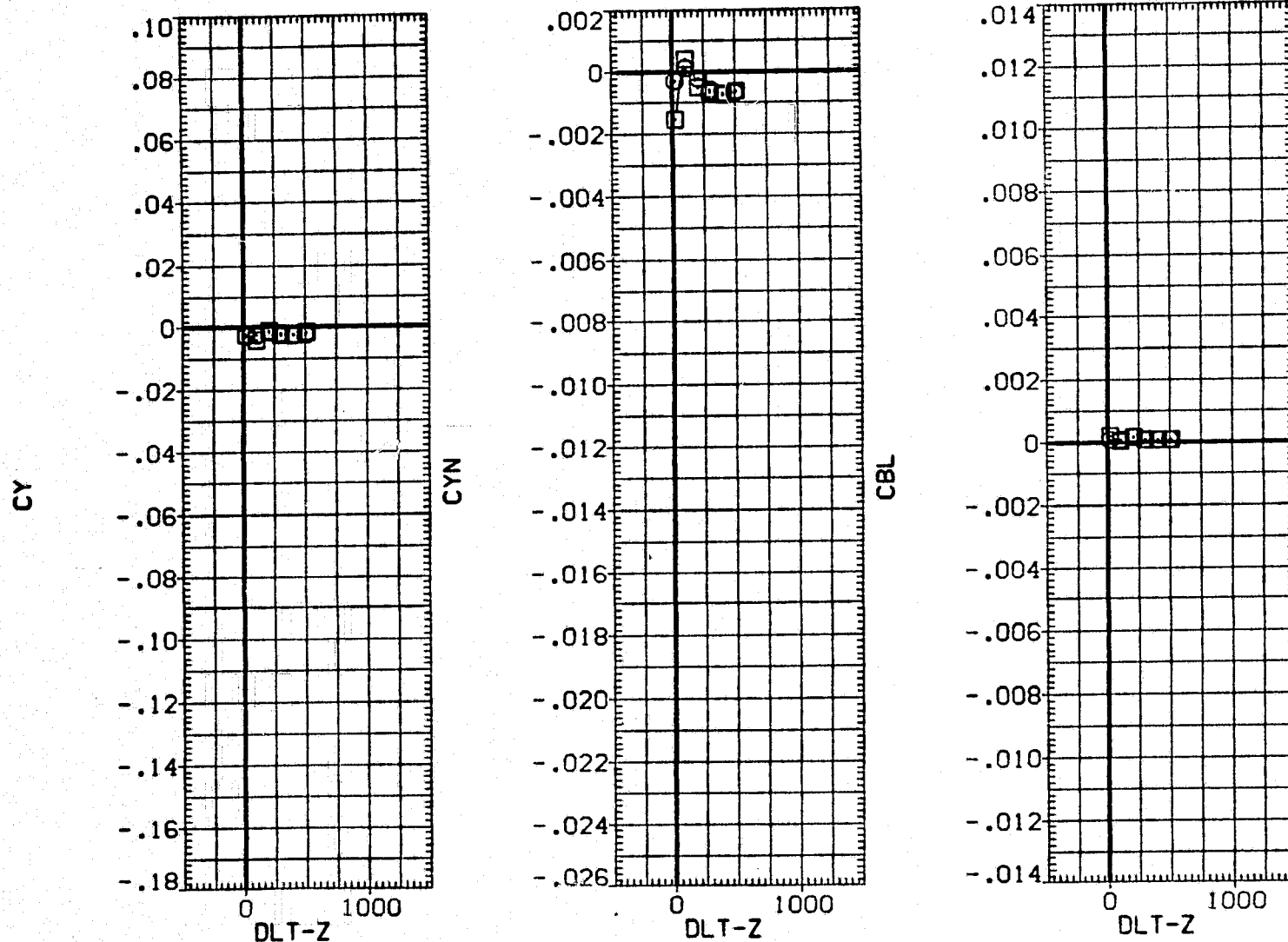


FIGURE 38 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELV=0, LWR P0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR344)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.501	60.000	ALPHA	.000		
□	200.390	.000	DLTALF	-10.000		
◇	400.520	.000	MACH	7.980		
		.000	ELEVON	.000		
		16.000	P0	300.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

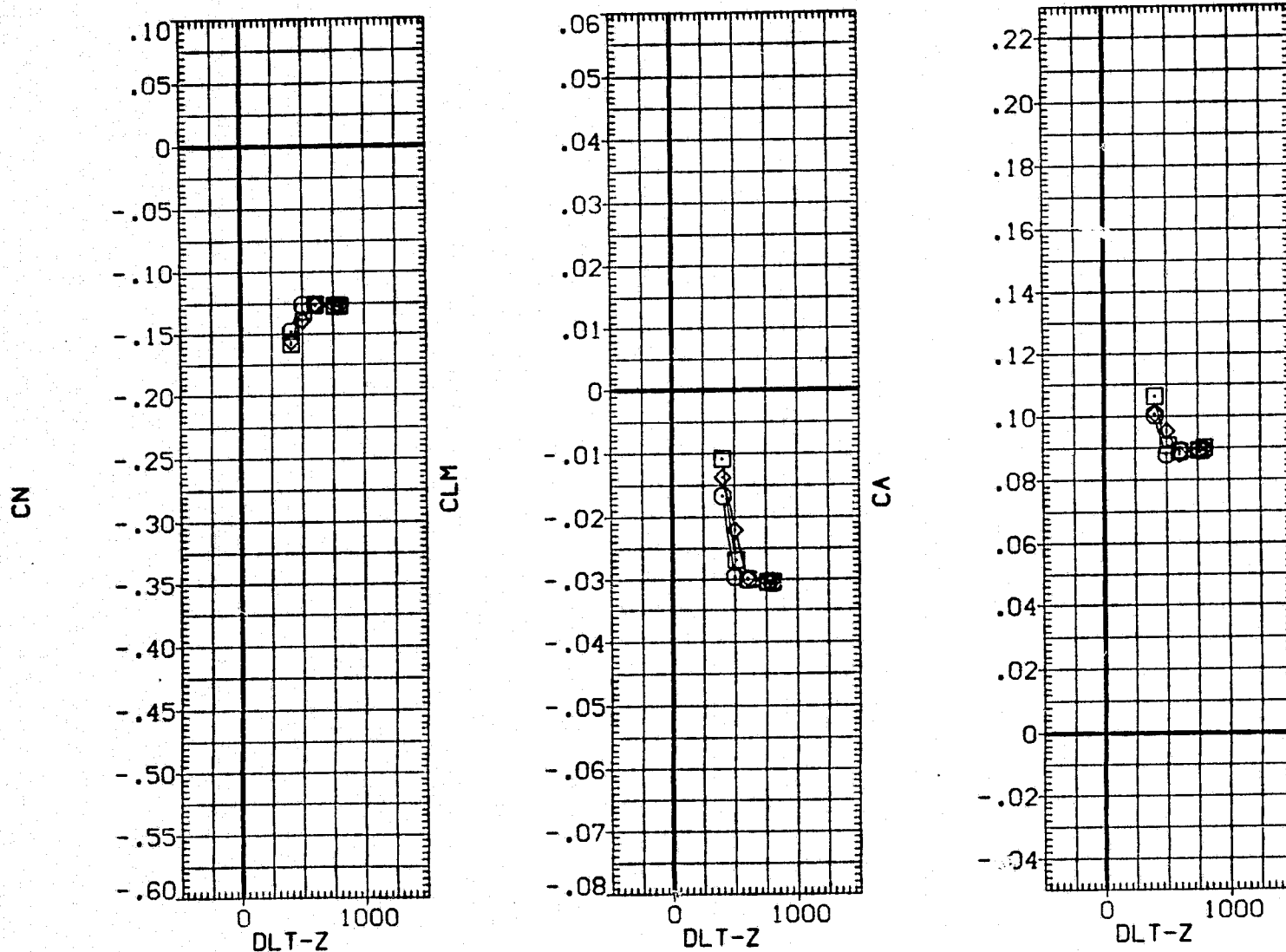


FIGURE 38 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELV=0, LWR P0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR344)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.501	.501	60.000	60.000	ALPHA	.000
□	200.390	BETA	.000	DLTALF	-10.000	
◇	400.520	DLTBTA	.000	MACH	7.980	
		AILRON	.000	ELEVON	.000	
		GRID	16.000	P0	300.000	

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

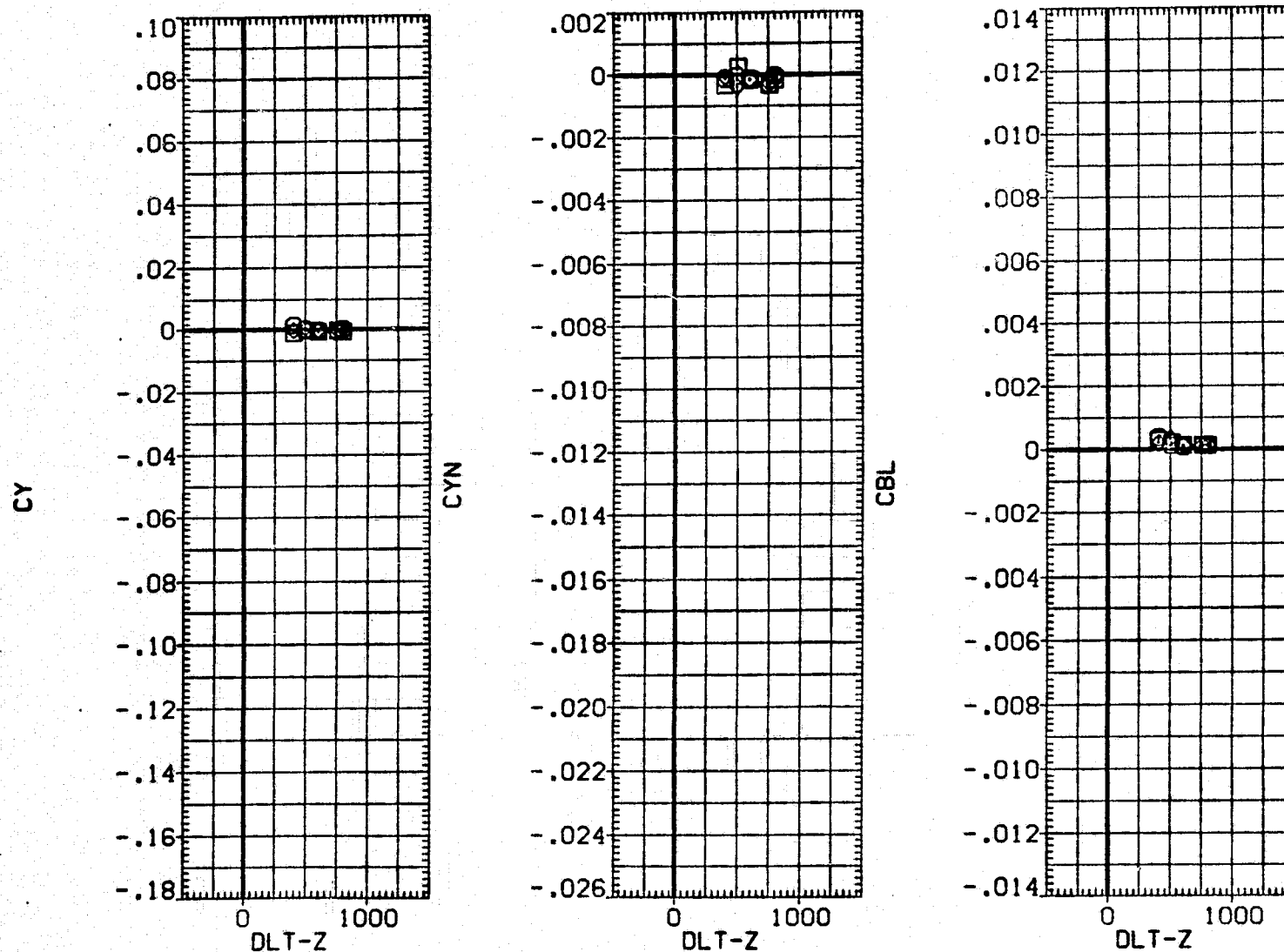


FIGURE 38 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=60, MACH=7.98, ELV=0, LWR P0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR401)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.636	200.000	BETA	.000	.000
□	200.530	3.000	DLTBT	5.930	.000
		.000	AILRON		
		1.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

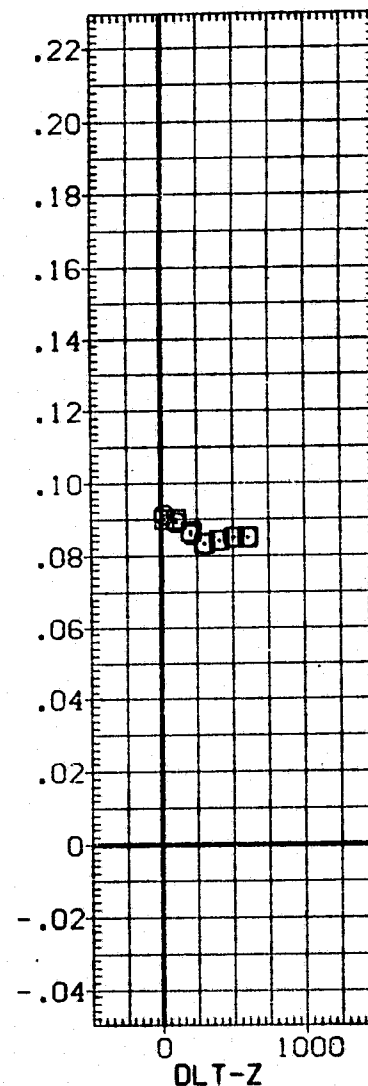
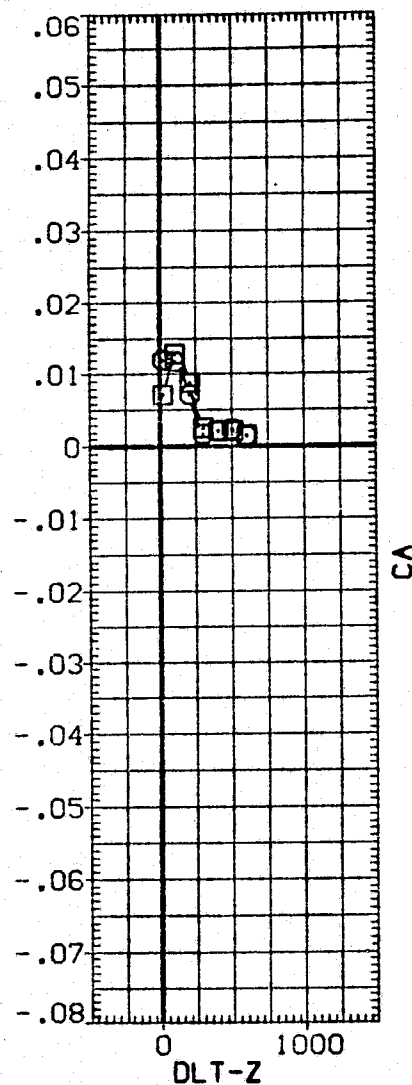
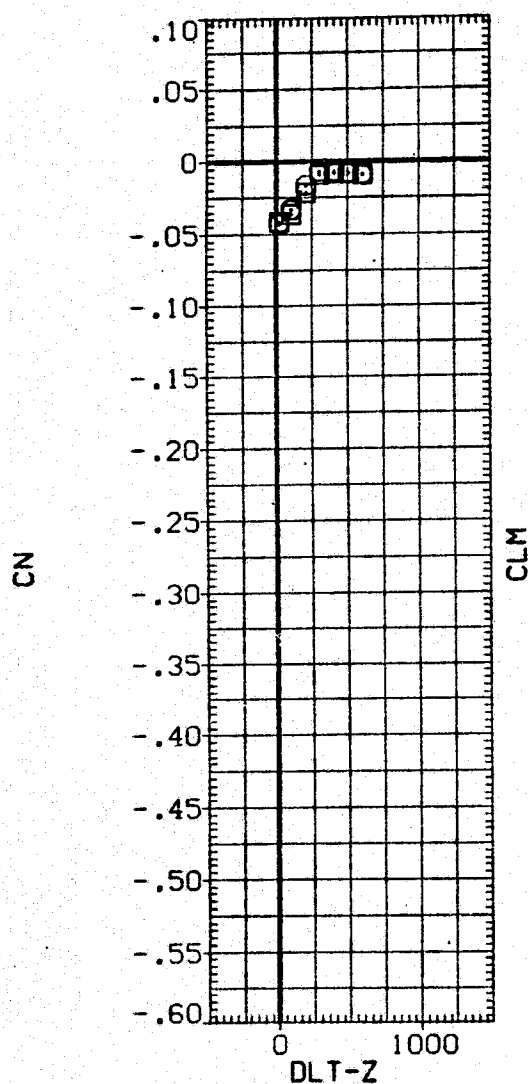


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR401)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.636	BETA	200.000	.000
□	200.530	DLTBT	.000	.000
		AILRON	3.000	5.930
		GRID	.000	.000
			1.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

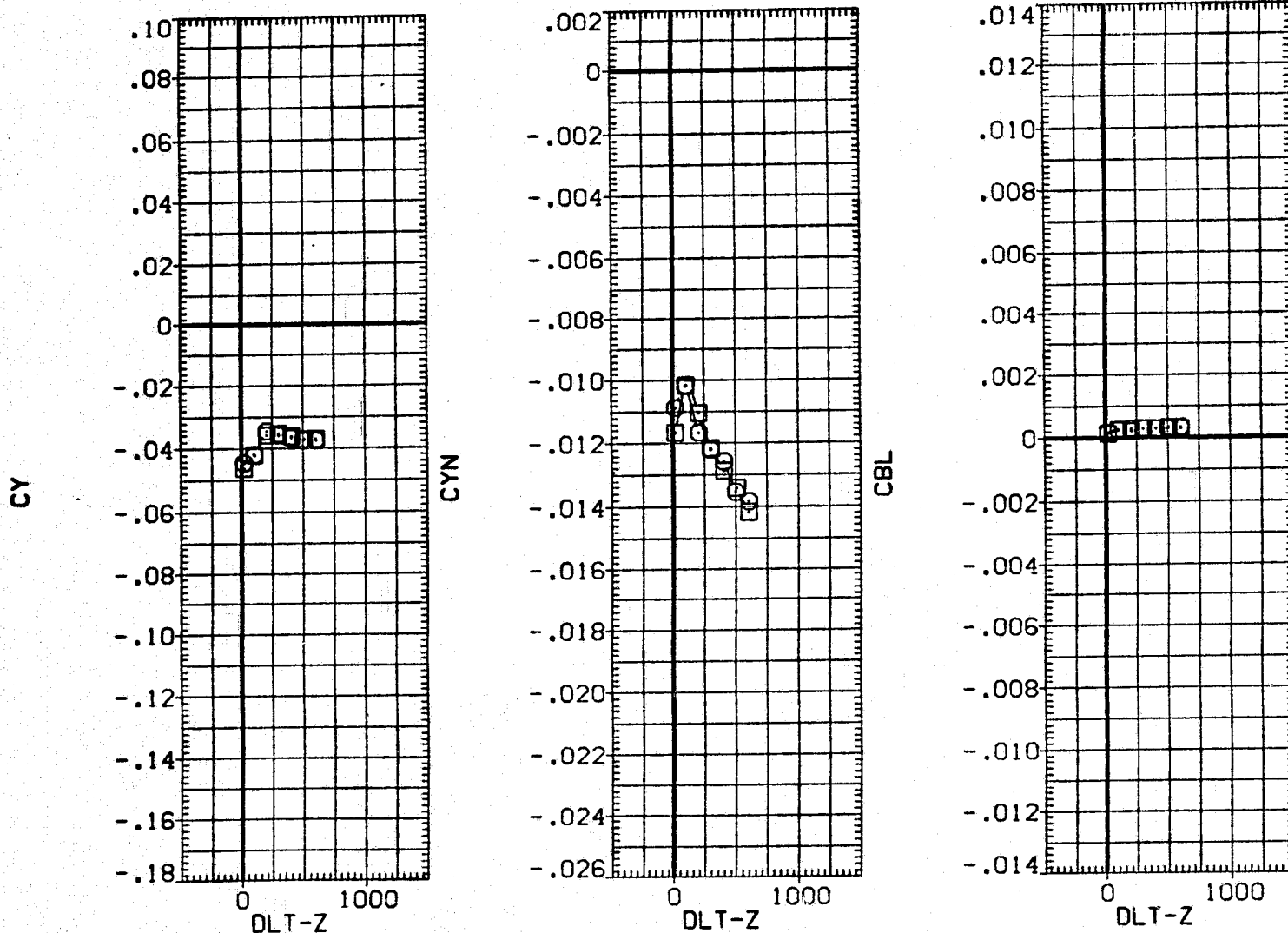


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR402)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
○	.498	200.000	BETA	.000	-10.000
□	200.450	3.000	DLTSTA	5.930	
◇	400.450	.000	AILRON	.000	
		1.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

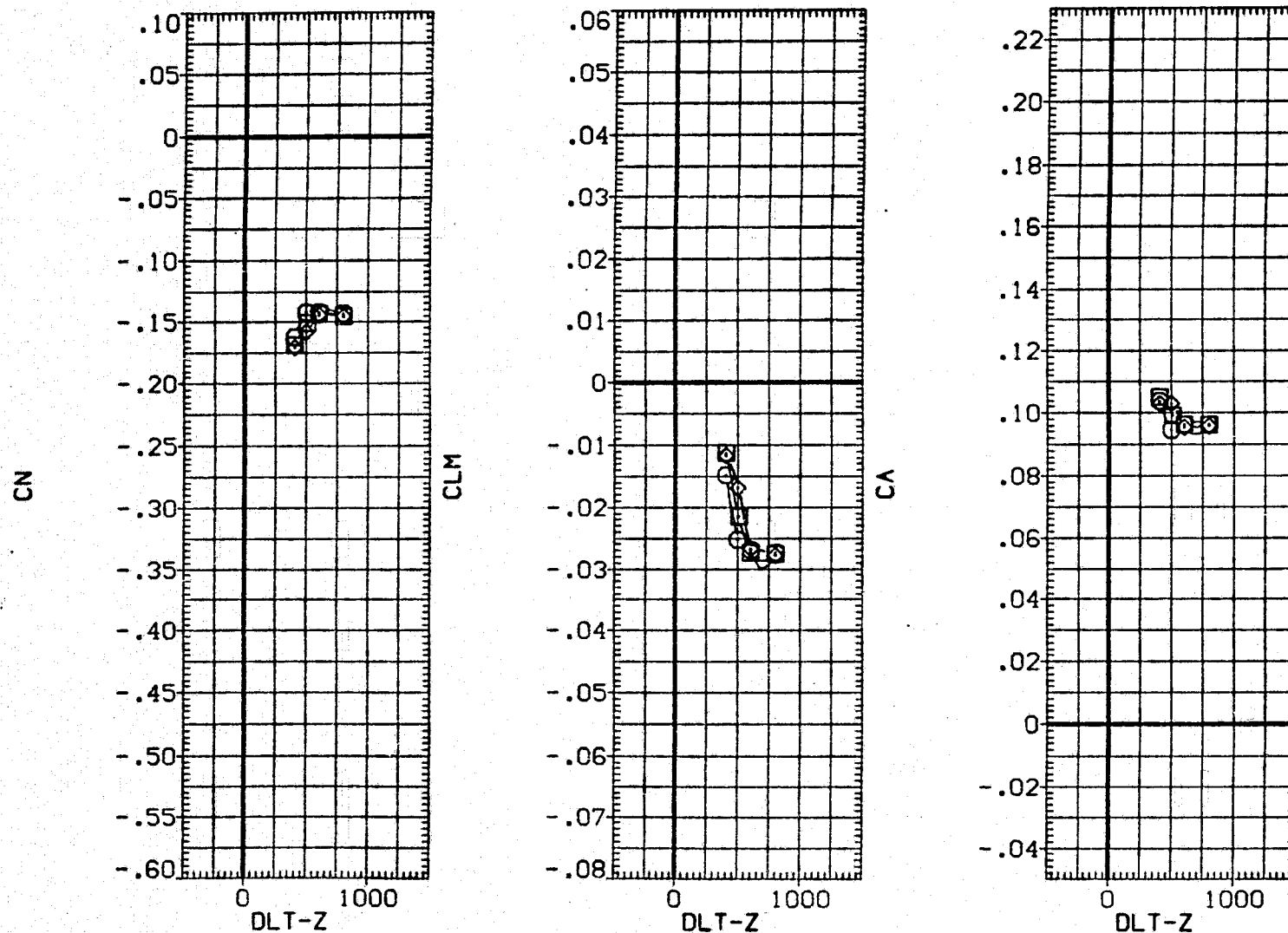


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR402)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.498	200.000	BETA	.000
□	200.450	3.000	DLTBT	-10.000
◇	400.450	.000	MACH	5.930
			ELEVON	.000
			GRID	1.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	415.4000	IN. ZT
SCALE	.0100	

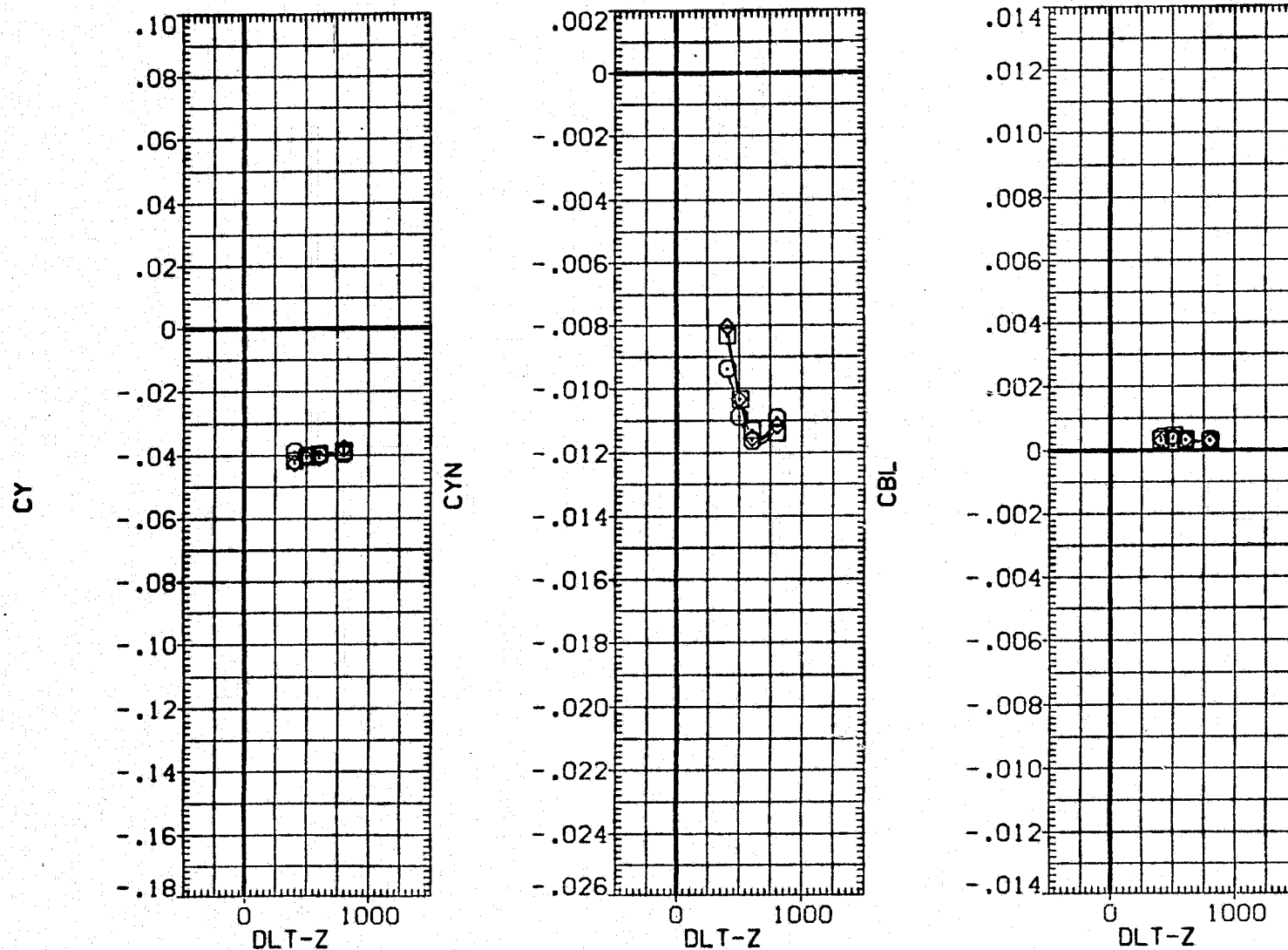


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR403)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	ALPHA	DLTALF	
○	.499	200.000	.000	-20.000	
□	200.450	BETA	.000	5.930	
◇	400.420	DLTBTA	3.000	ELEVON	.000
		AILRON	.000		
		GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

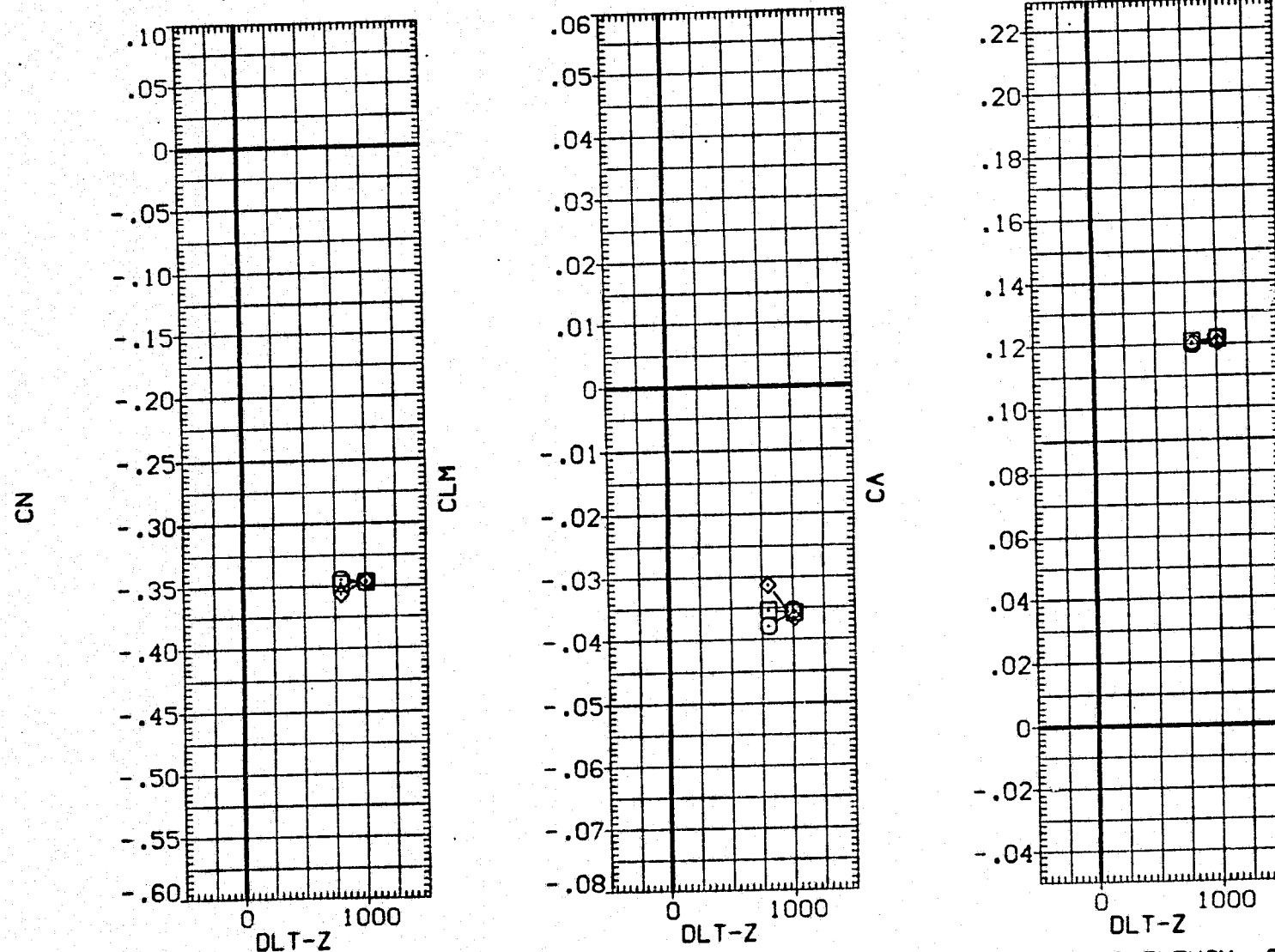


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR403)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.499	200.450	200.000	.000	-20.000	5.930
□	200.450	400.420	.000	.000	.000	.000
◇	DLTBT	AILRON	GRID			
			1.000			

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

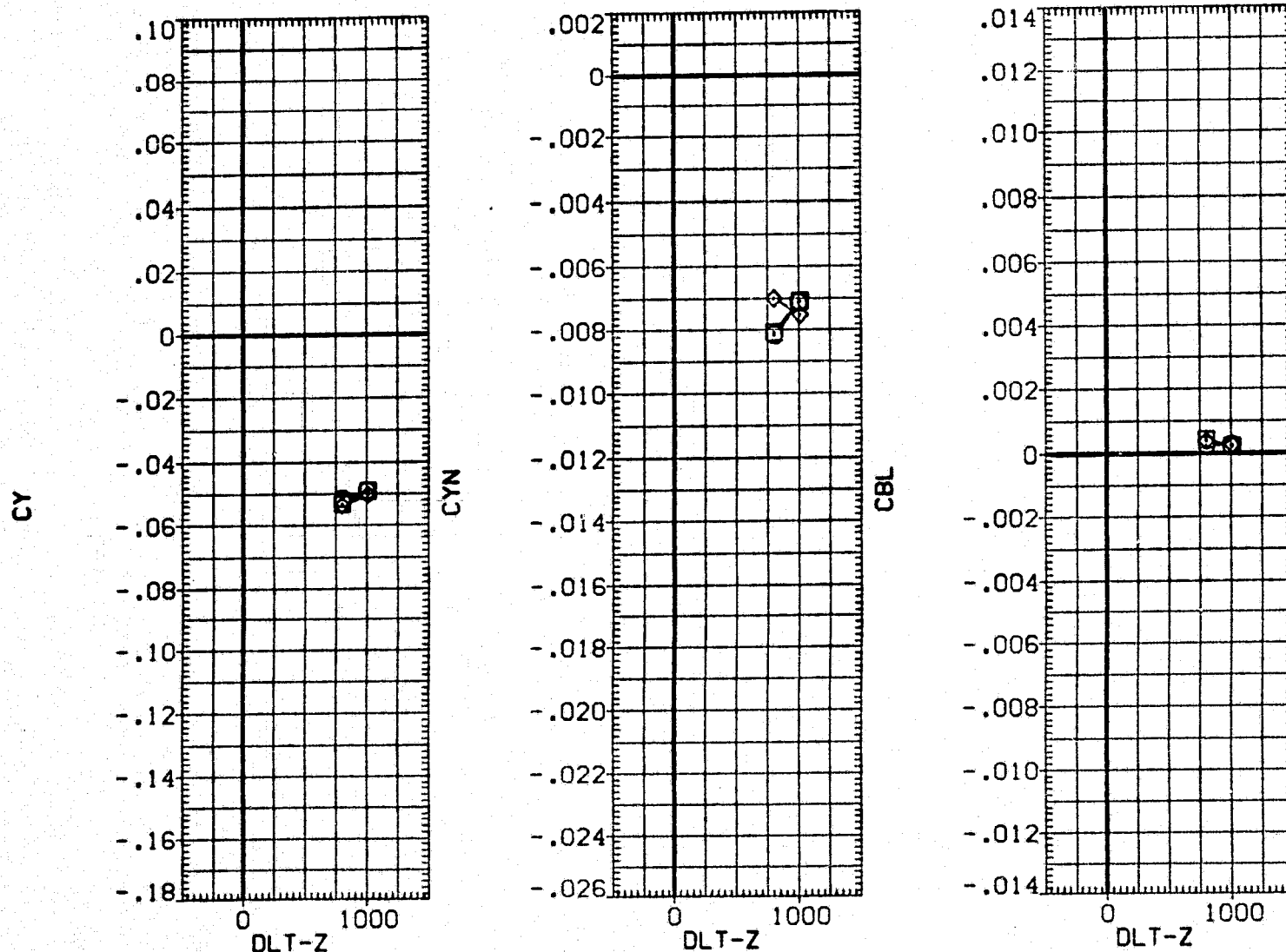


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR405)

SYMBOL	DLT-X		PARAMETRIC VALUES		
○	.329	DLT-Y	200.000	ALPHA	.000
□	200.450	BETA	.000	DLTALF	-20.000
◇	400.450	DLTBT	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	26.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

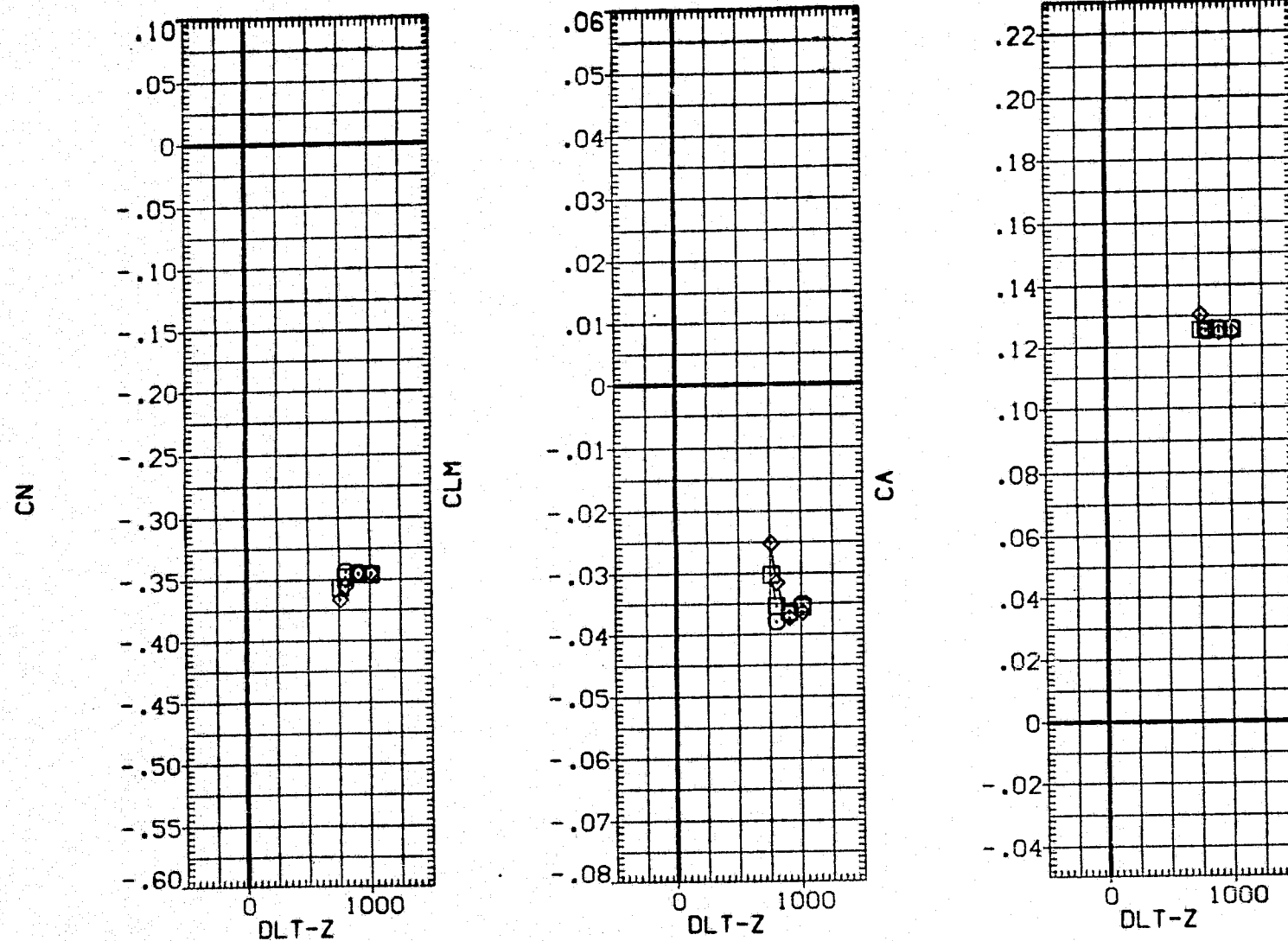


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR405)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.329	200.000	DLTALF	.000
□	200.450	.000	MACH	-20.000
◇	400.450	3.000	ELEVON	5.930
		.000		.000
		26.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

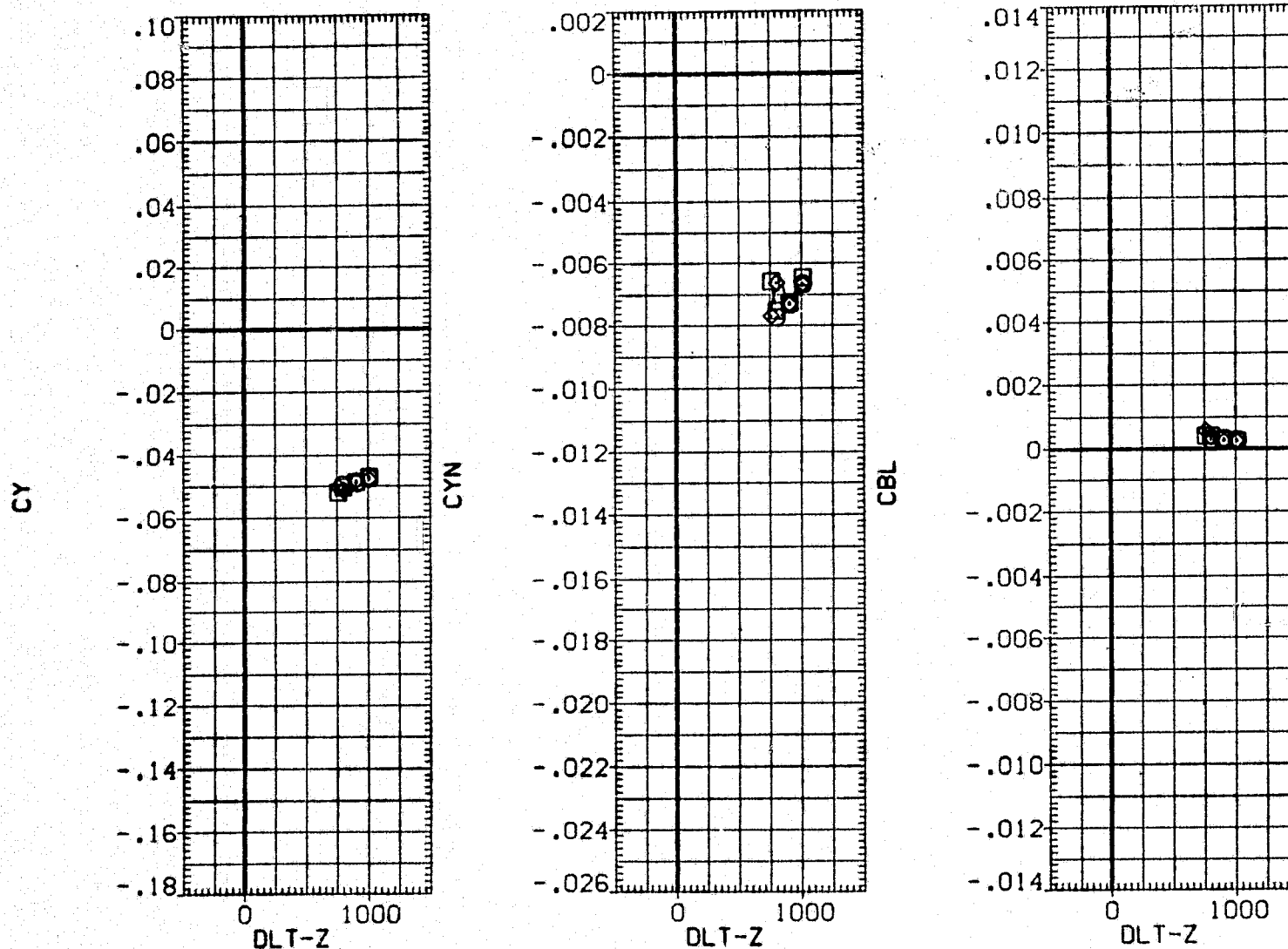


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR406)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
	.624	200.000	ALPHA	.000
□	200.550	BETA	3.000	DLTALF
		DLTBTA	3.000	MACH
		ATLRON	.000	ELEVON
		GRID	3.000	

REFERENCE INFORMATION	
SREF	2690.0000
LREF	1290.3000
BREF	1290.3000
XMRP	1360.1000
YMRP	.0000
ZMRP	416.4000
SCALE	.0100
	SQ.FT.
	IN.
	IN. XT
	IN. YT
	IN. ZT

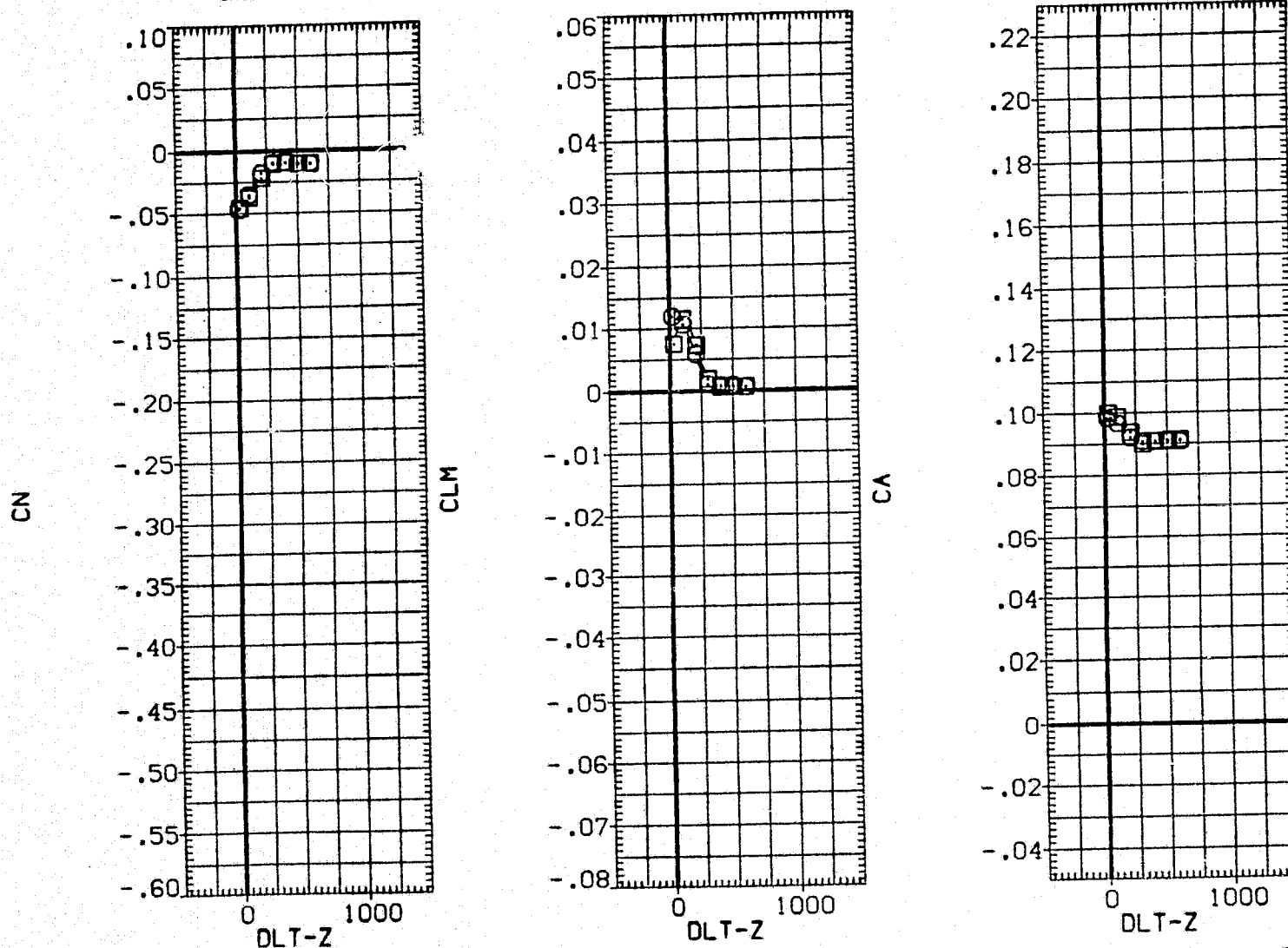


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR406)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.624	200.000	BETA	3.000	DLTALF
□	200.550	3.000	DLTBTA	3.000	MACH
		.000	AIRLON	3.000	ELEVON
			GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

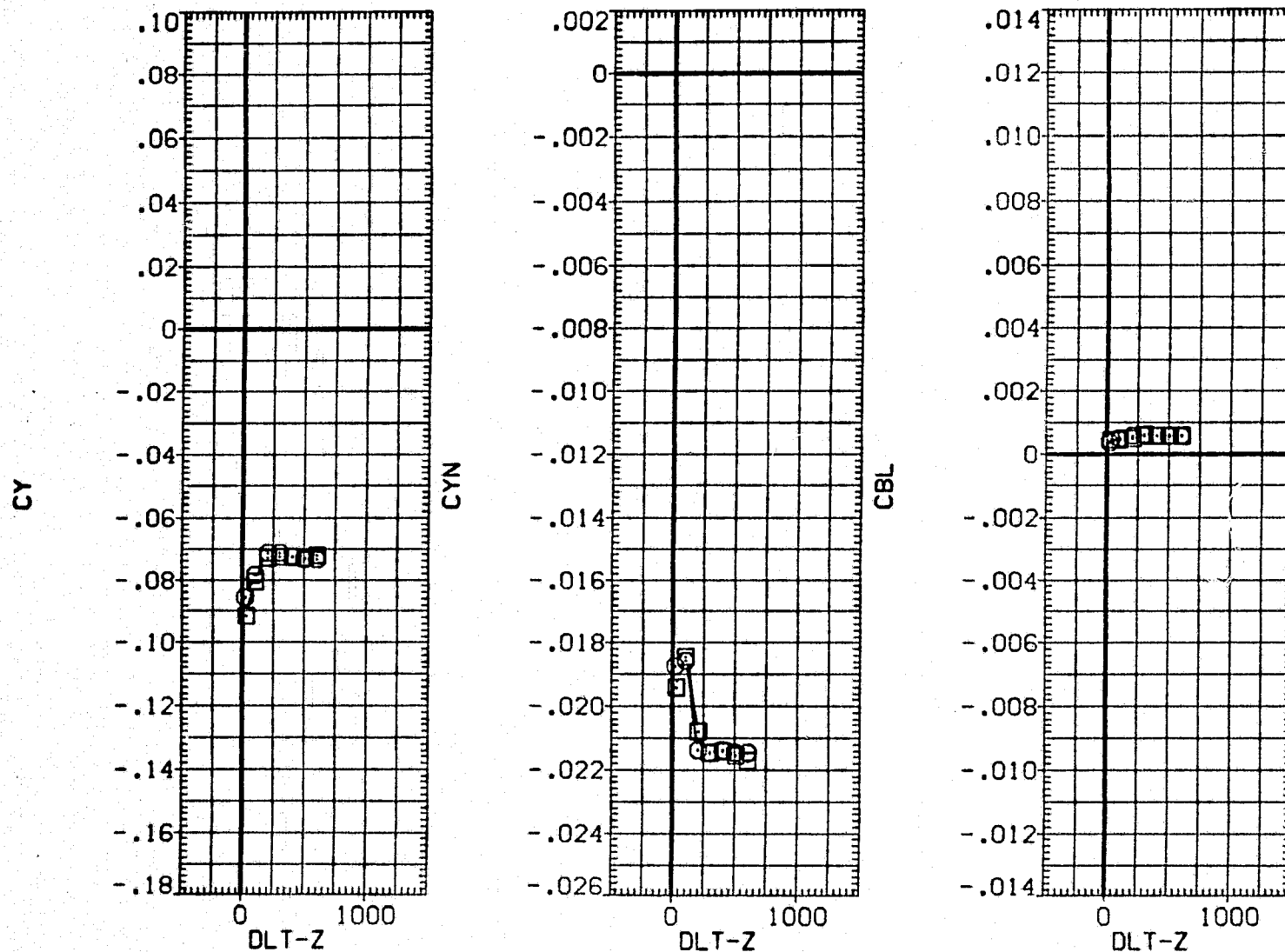


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR407)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.501	200.000	BETA	3.000	DLTALF
□	200.600	3.000	DLTBT	3.000	MACH
◇	400.540	.000	AILRON	3.000	ELEVON
			GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

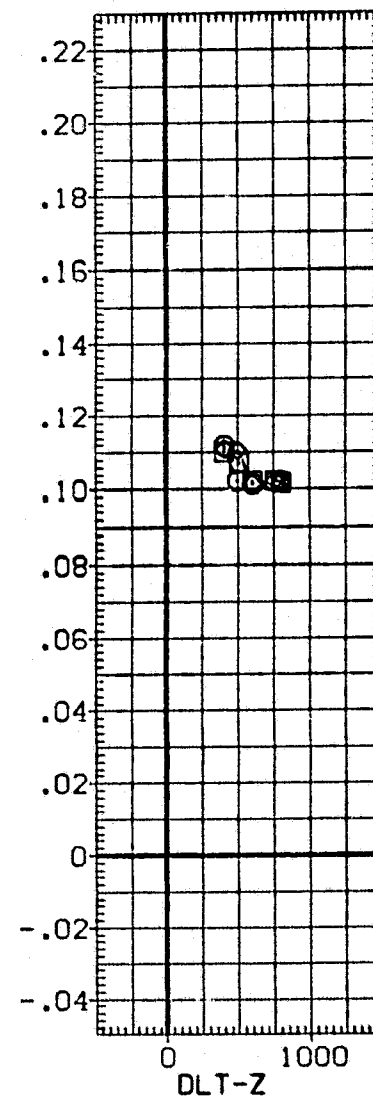
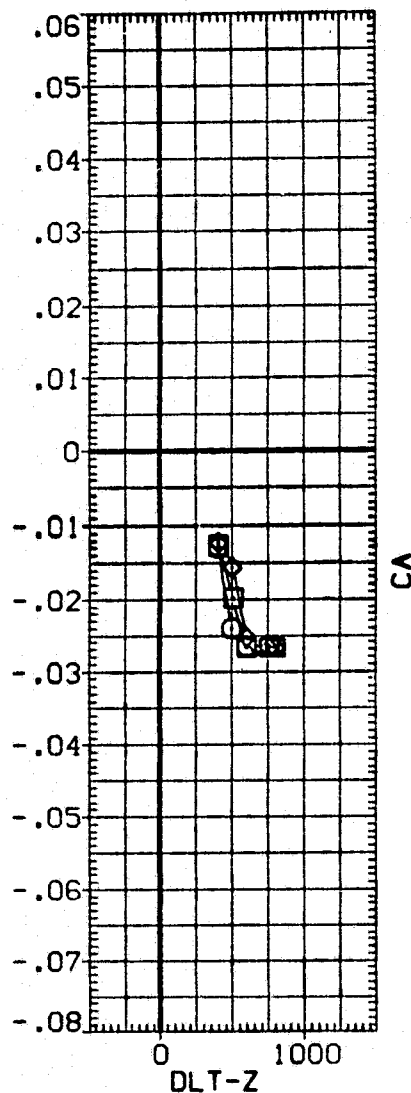
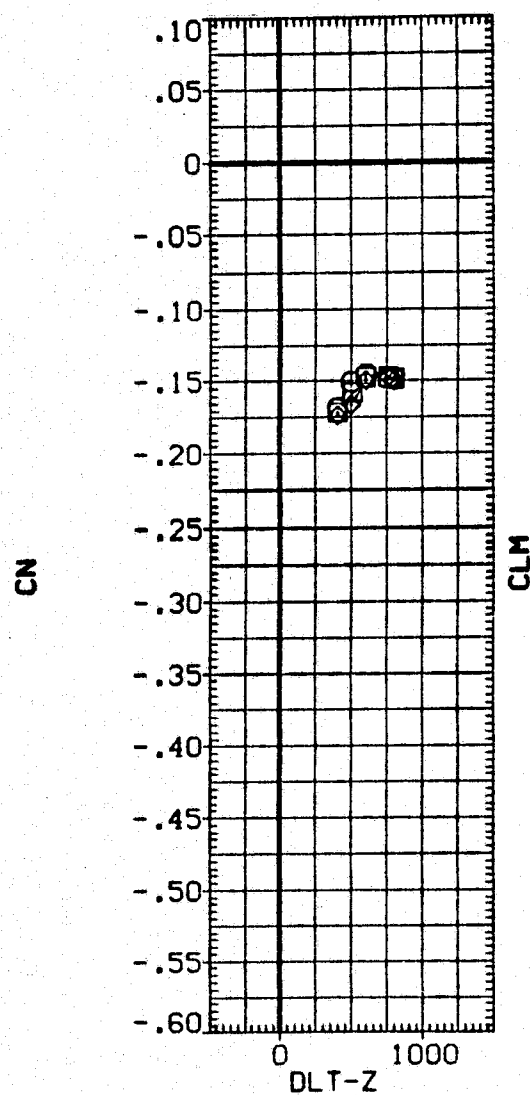


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR407)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	MACH	ELEVON
○	.501	200.600	200.000	-10.000	5.930	.000
□	200.600	400.540	3.000	3.000	.000	.000
◇	400.540		3.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

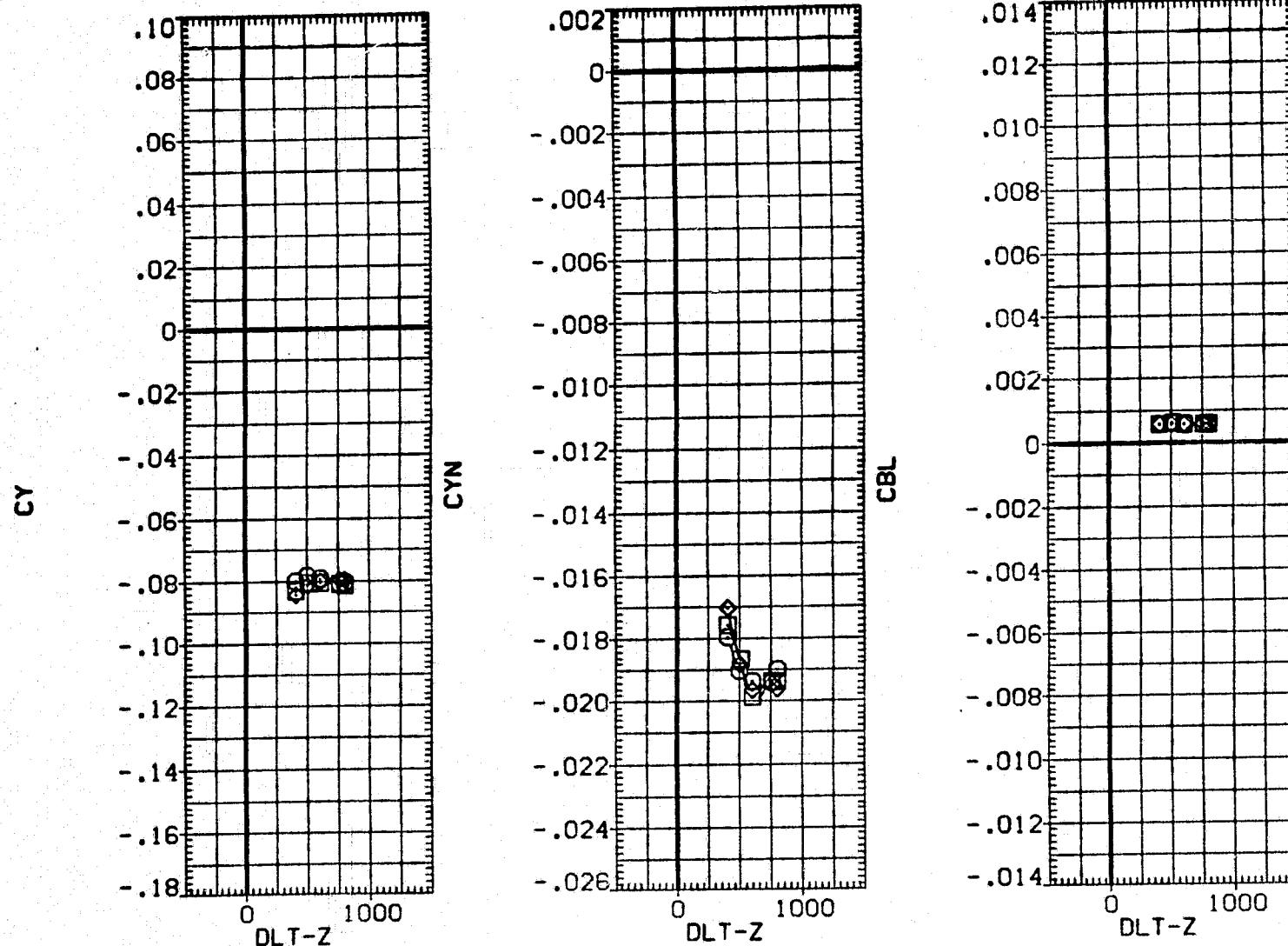


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR409)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.502		ALPHA	.000
□	200.560	BETA	DLTALF	-20.000
◇	400.480	DLTBTA	MACH	5.930
		AILRON	ELEVON	.000
		GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

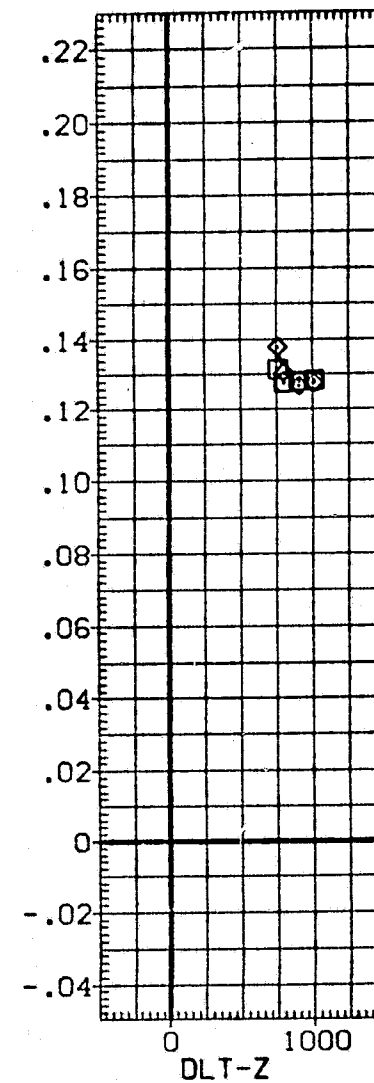
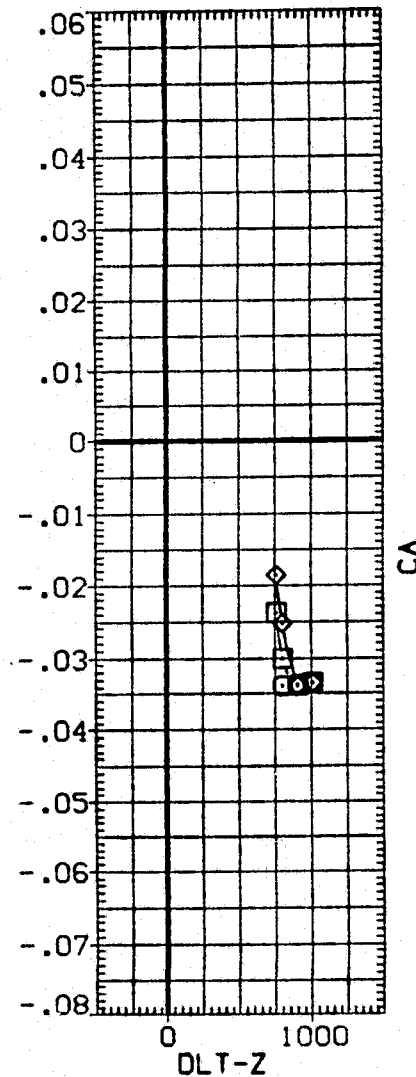
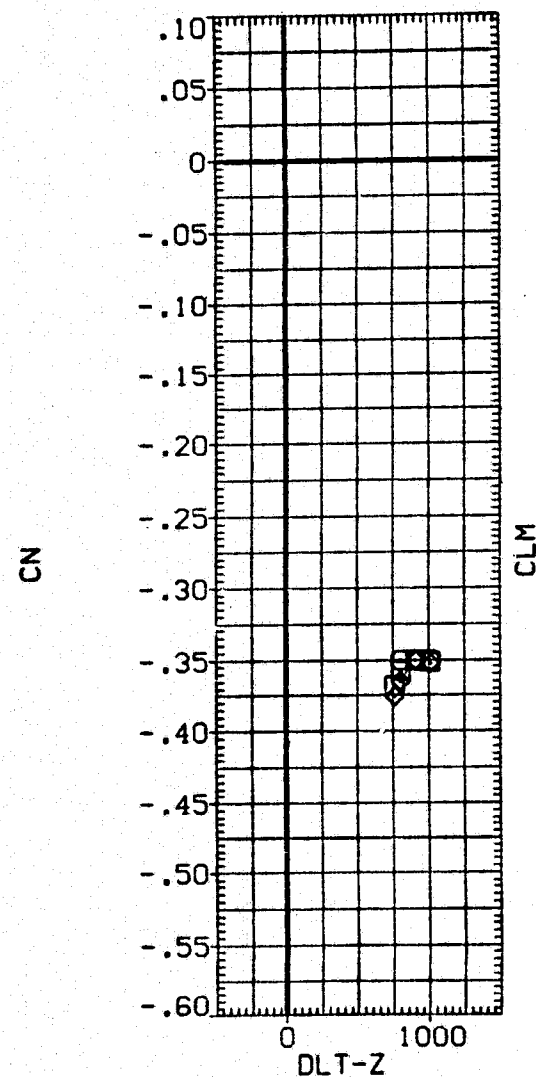


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR409)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.502	200.560	200.000	.000	
□		BETA	3.000	-20.000	
◇	400.480	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	3.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

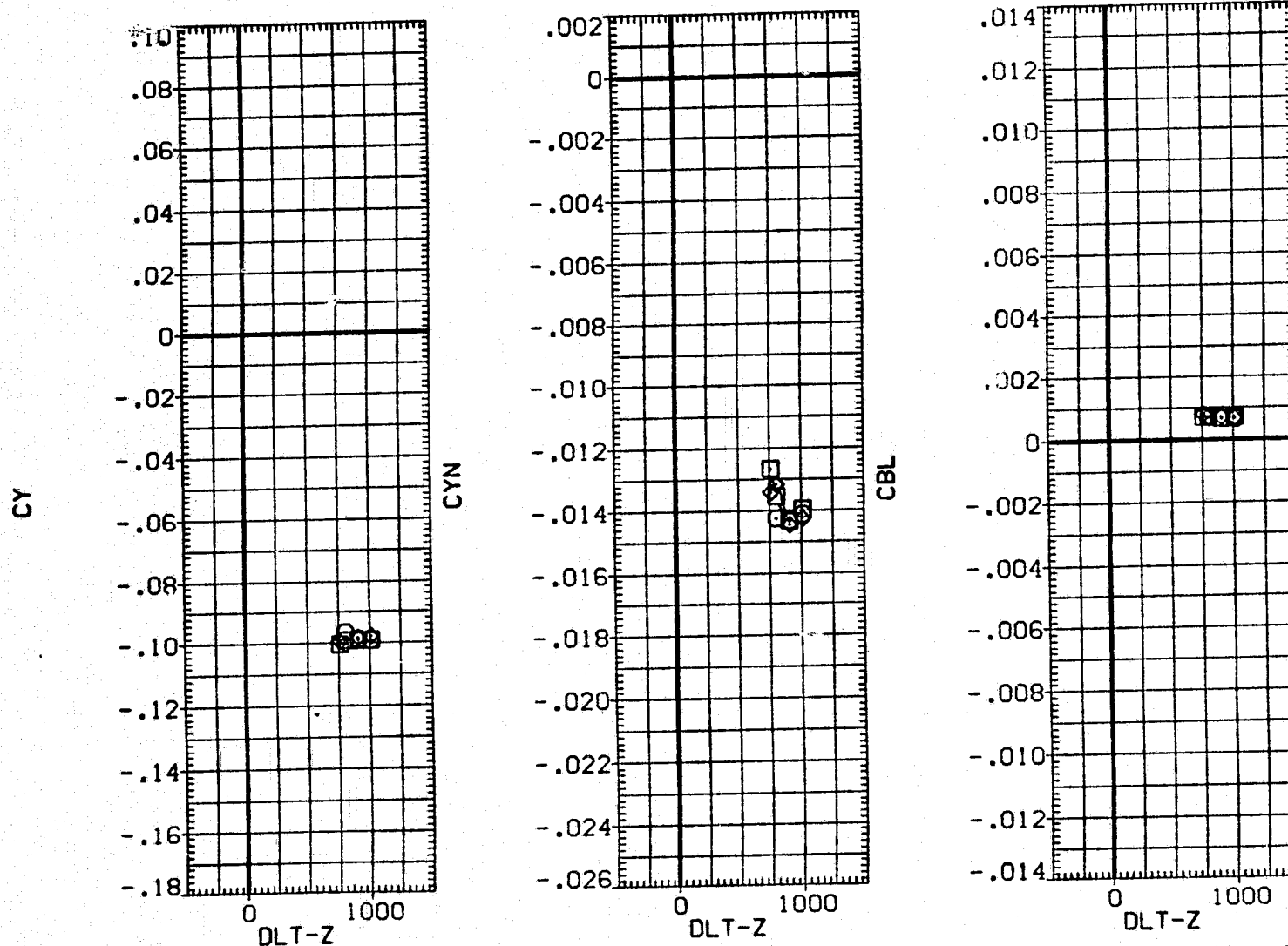


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR410)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.553	BETA	200.000	ALPHA 5.000
□	200.470	DLTBT	.000	DLTALF .000
		AILRON	3.000	MACH 5.930
		GRID	.000	ELEVON .000
			5.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

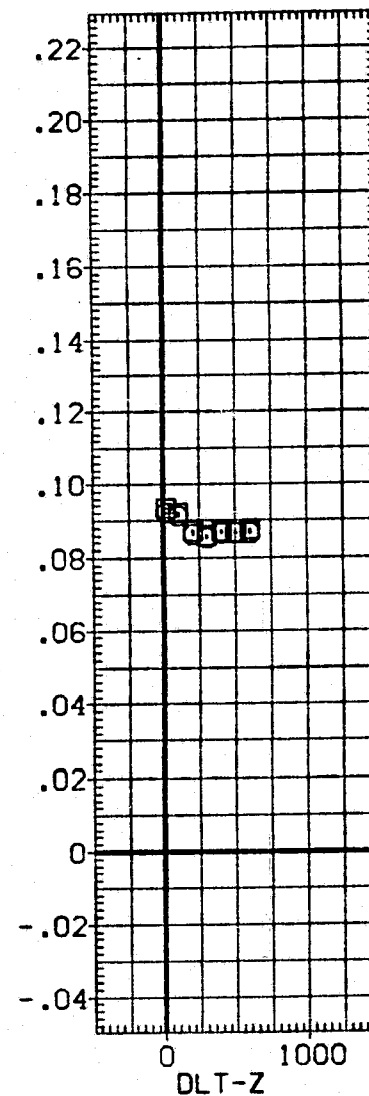
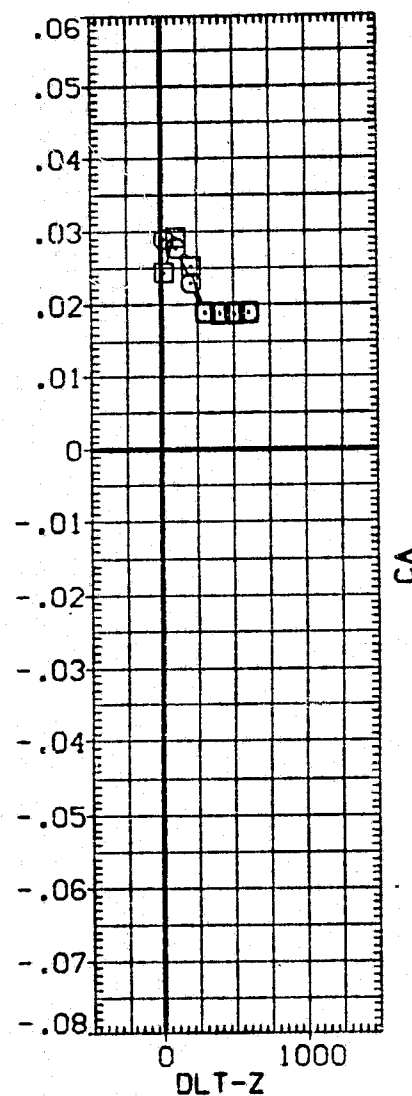
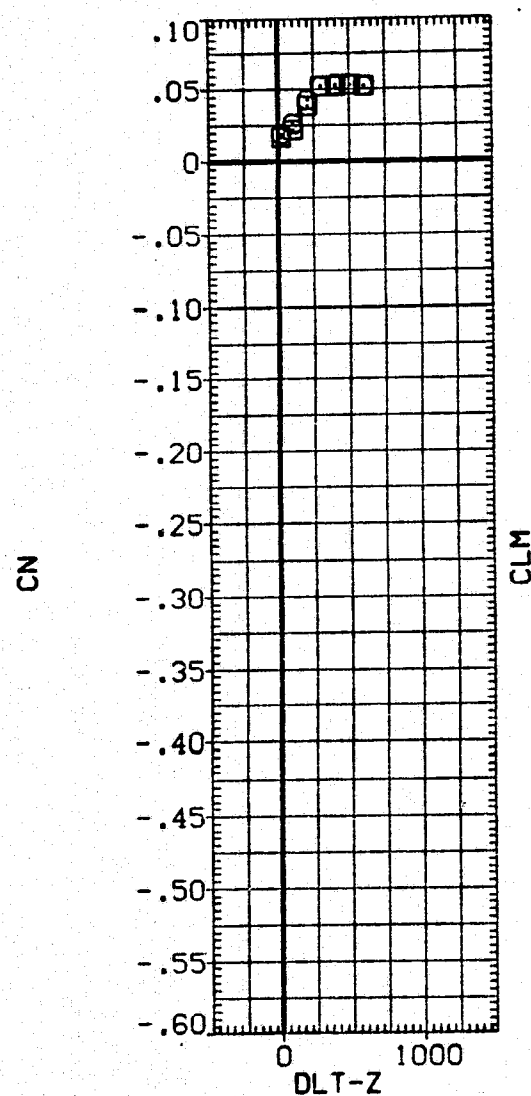


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR410)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.553	BETA	200.000	ALPHA
□	200.470	DLTBTA	.000	DLTALF
		AILRON	3.000	MACH
		GRID	.000	ELEVON
			5.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

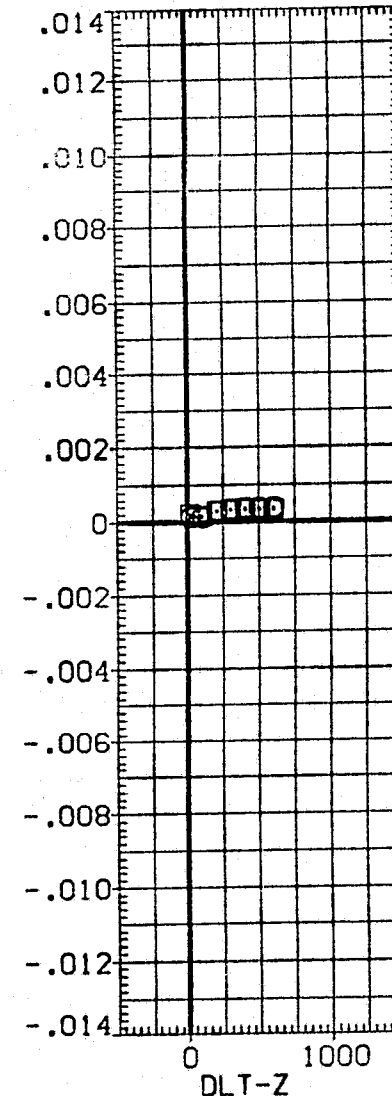
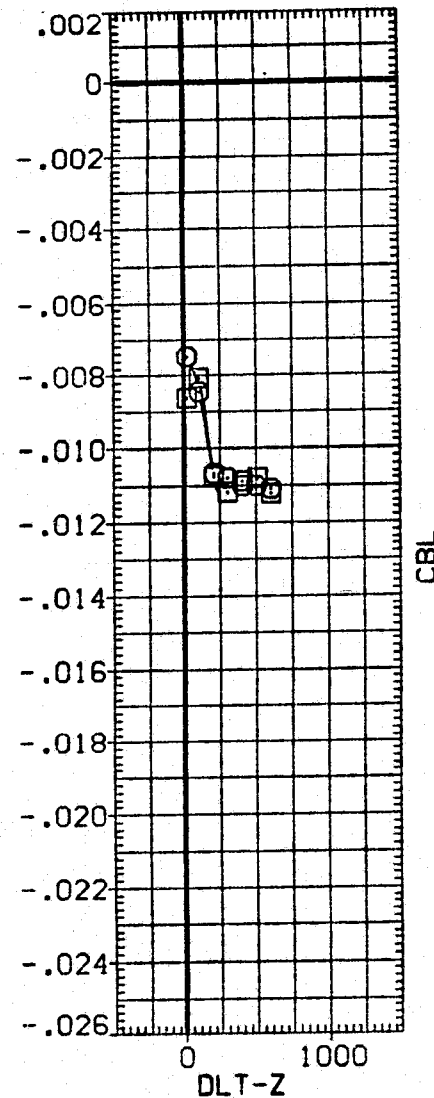
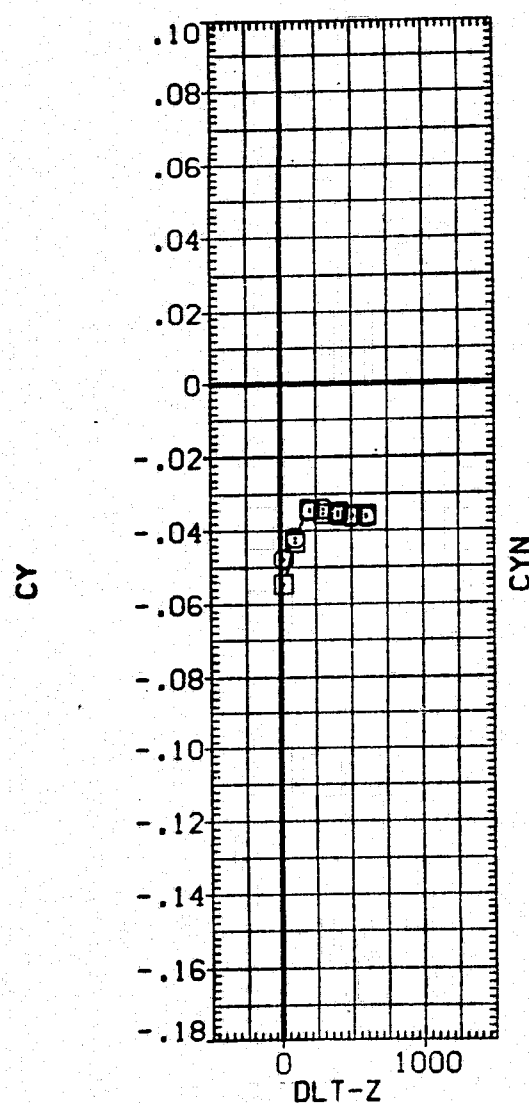


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR411)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
◇	.557	200.000	ALPHA	5.000
□	200.520	.000	DLTALF	-10.000
◇	400.510	3.000	MACH	5.930
		.000	ELEVON	.000
		GRID	5.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

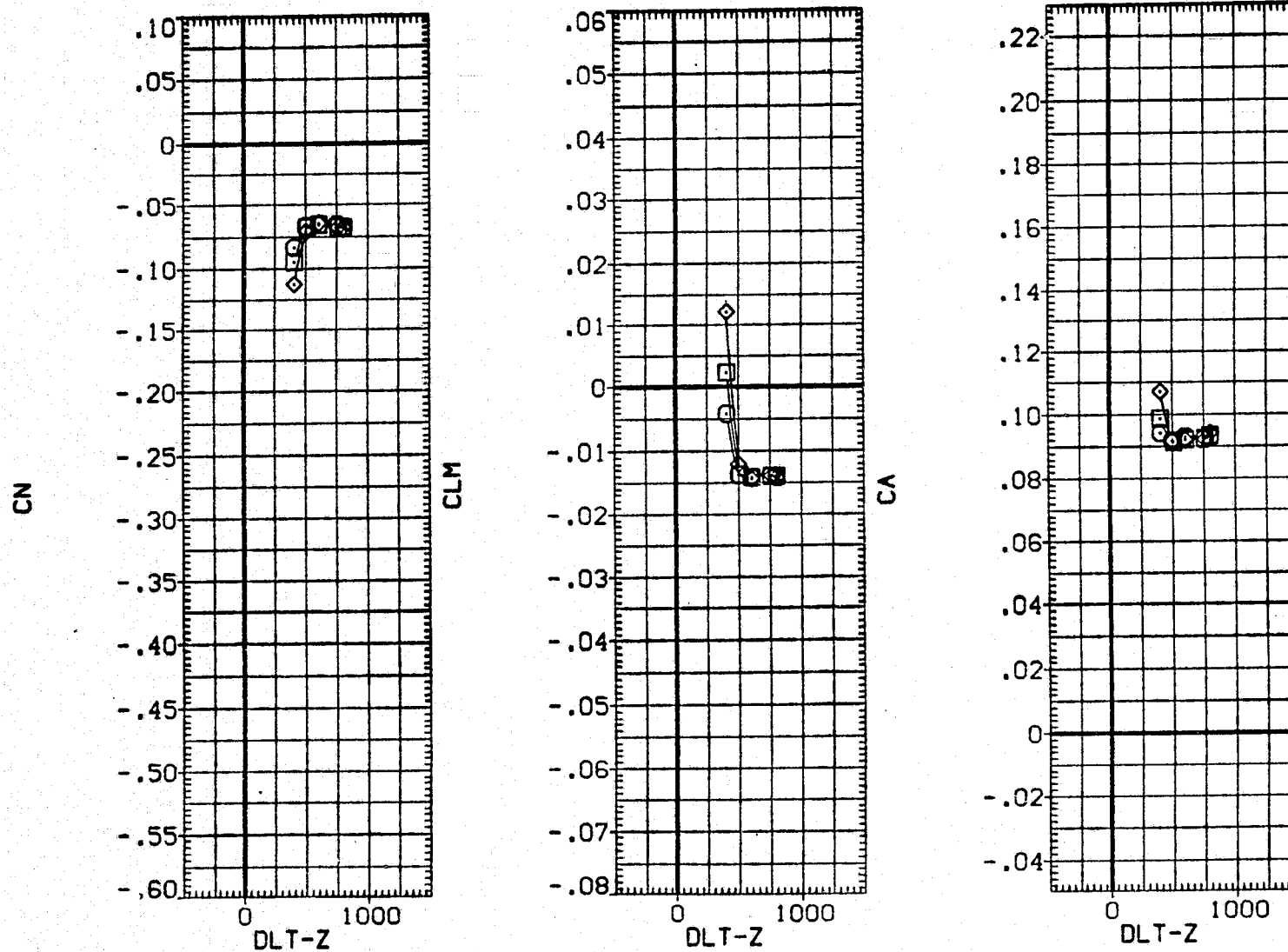


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
○	.557	BETA	200.000	ALPHA	5.000
□	200.520	DLTSTA	.000	DLTALF	-10.000
◇	400.510	ATLRON	3.000	MACH	5.930
		GRID	.000	ELEVON	.000
			5.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

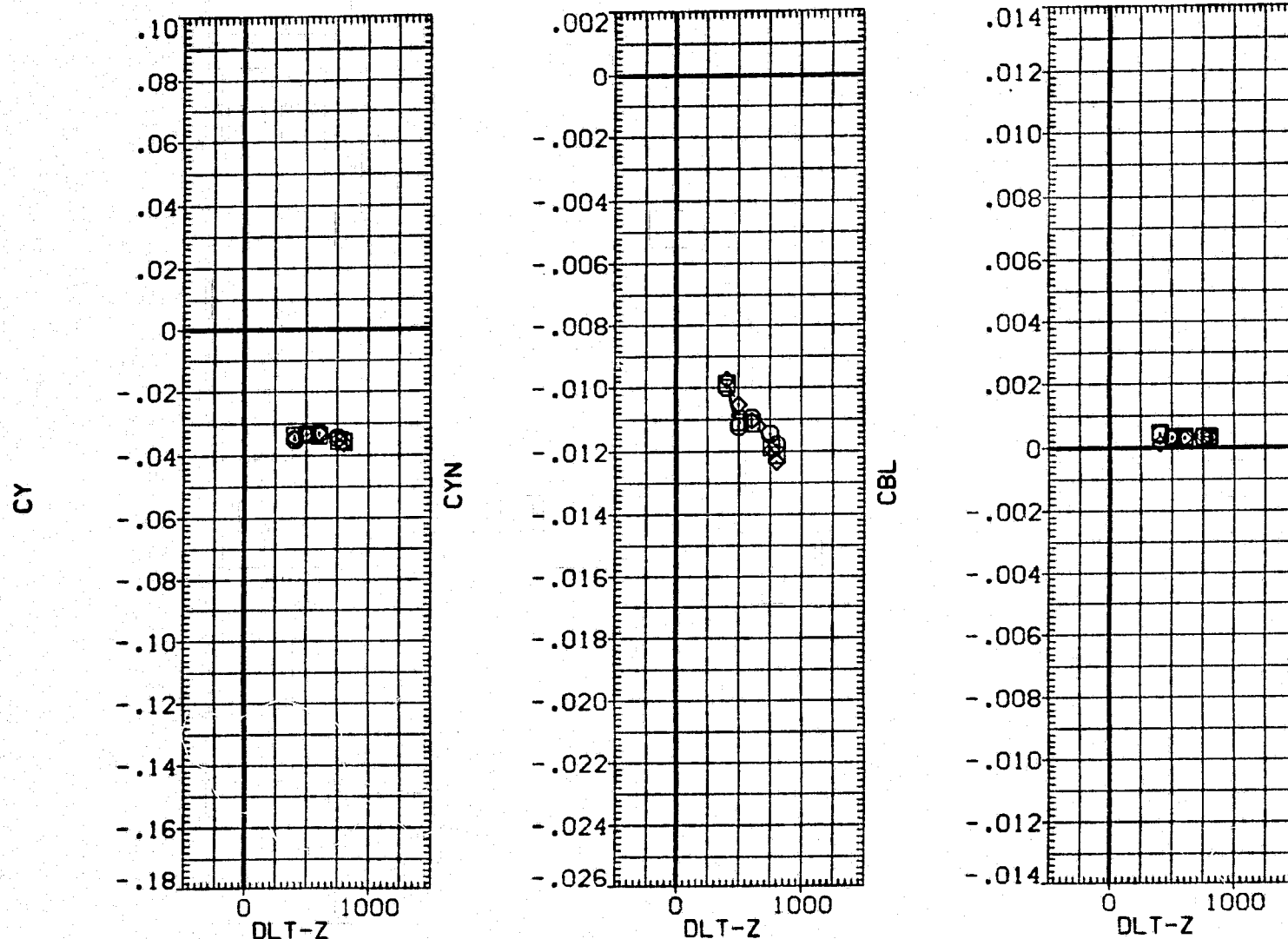


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR413)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
◇	.431	200.000	BETA	5.000
□	200.400	3.000	DLTALF	-20.000
◇	400.500	3.000	MACH	5.930
		.000	ELEVON	.000
		GRID	5.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

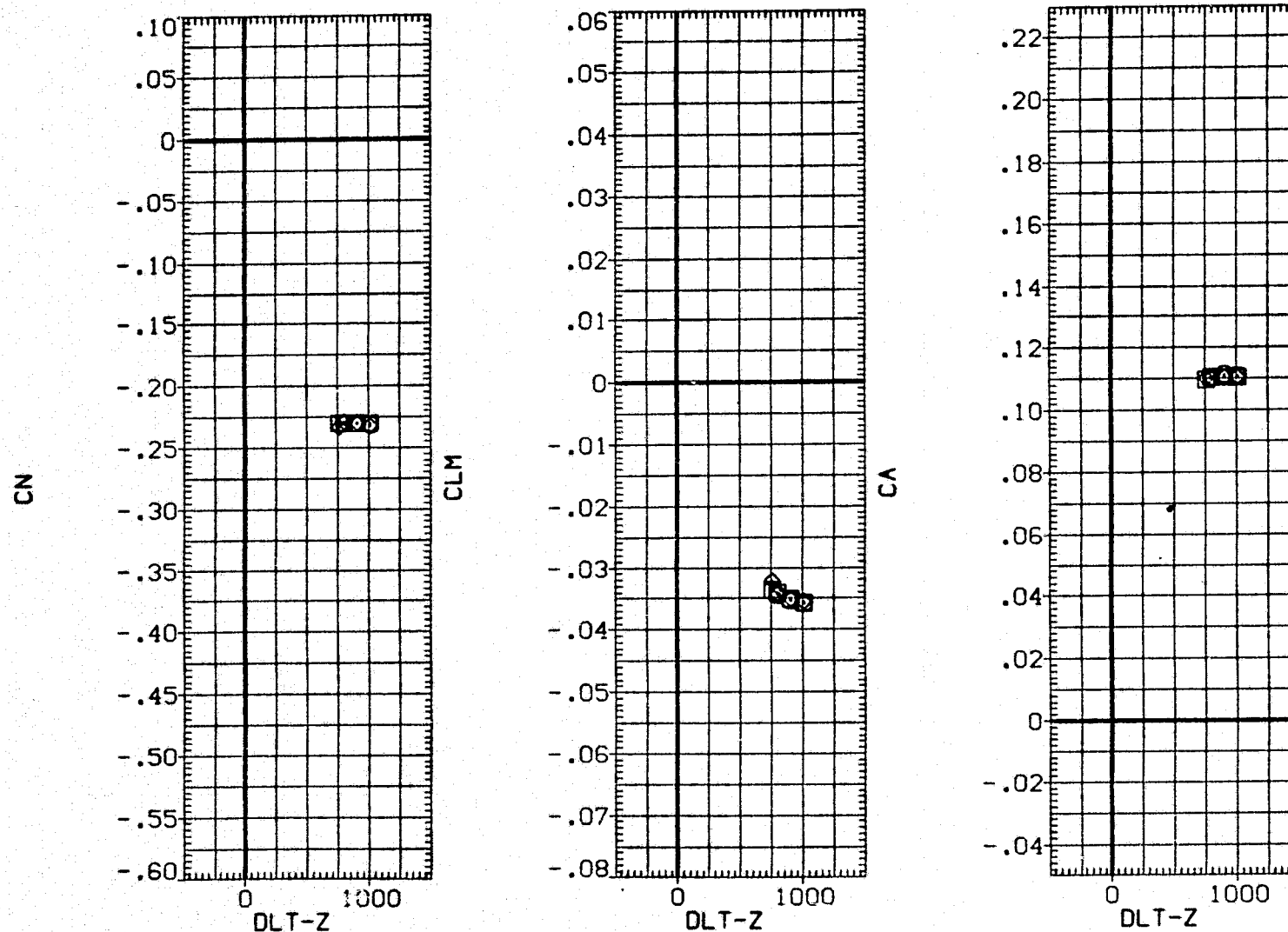


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR413)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.431	DLT-Y	200.000	ALPHA	5.000
	200.400	BETA	.000	DLTALF	-20.000
	400.500	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	5.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

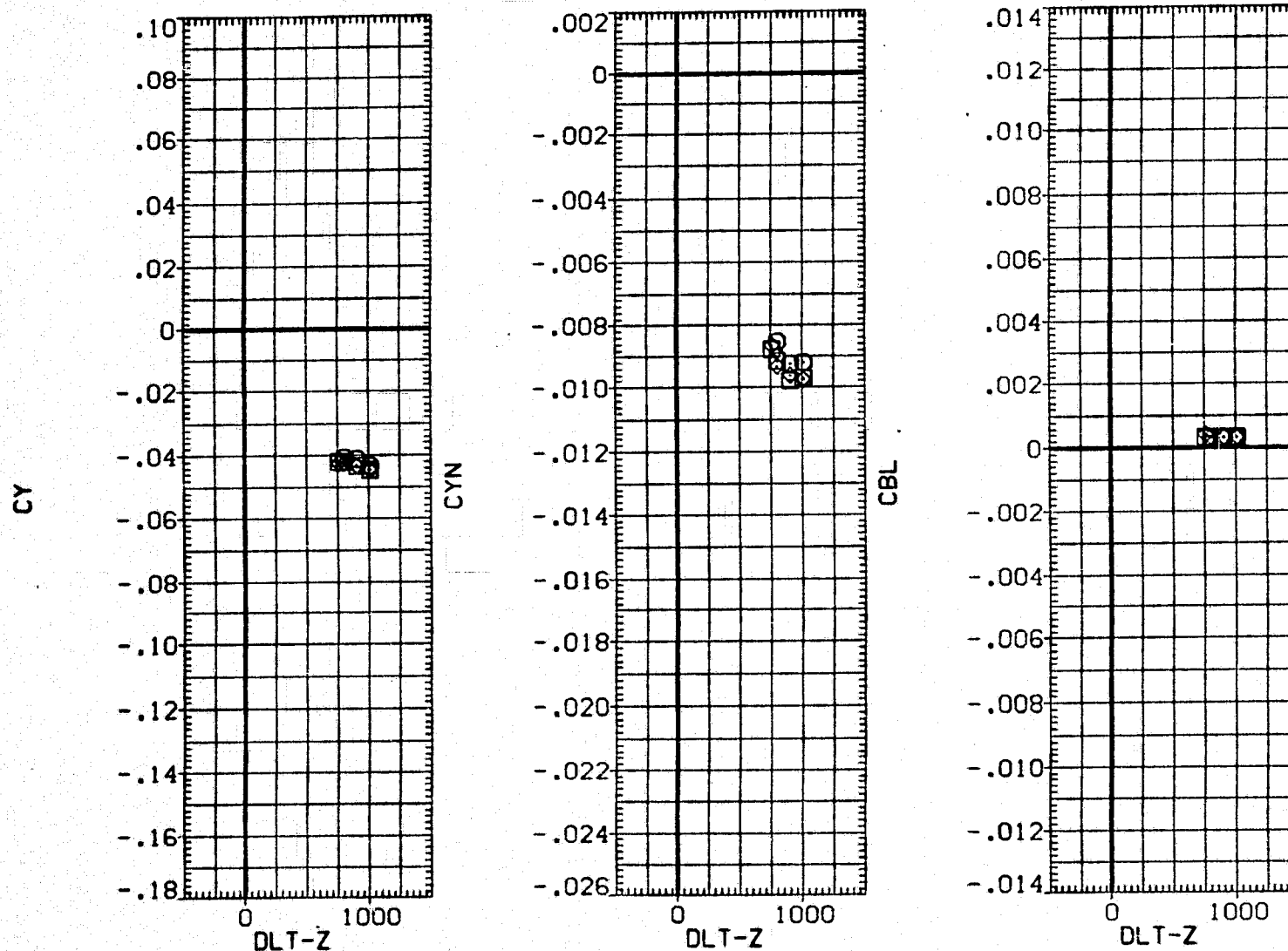


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR414)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.576		200.000	ALPHA 5.000
□	200.590	BETA	3.000	DLTALF .000
		DLTBTA	3.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	4.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ. FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

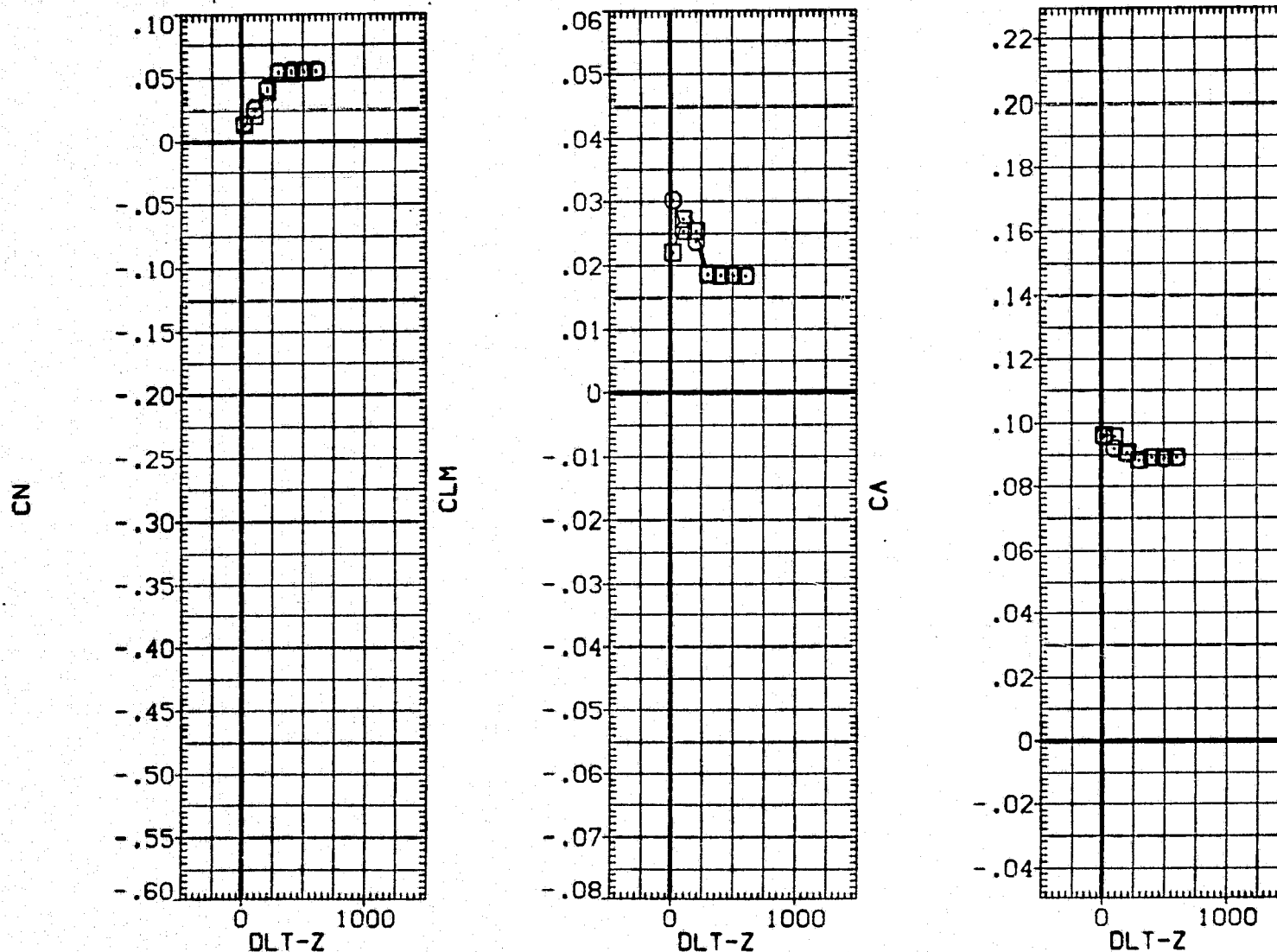


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR414)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	200.000	ALPHA	5.000	
○	.576	BETA	3.000	DLTALF	.000	
□	200.590	DLTBTA	3.000	MACH	5.930	
		AILRON	.000	ELEVON	.000	
		GRID	4.000			

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

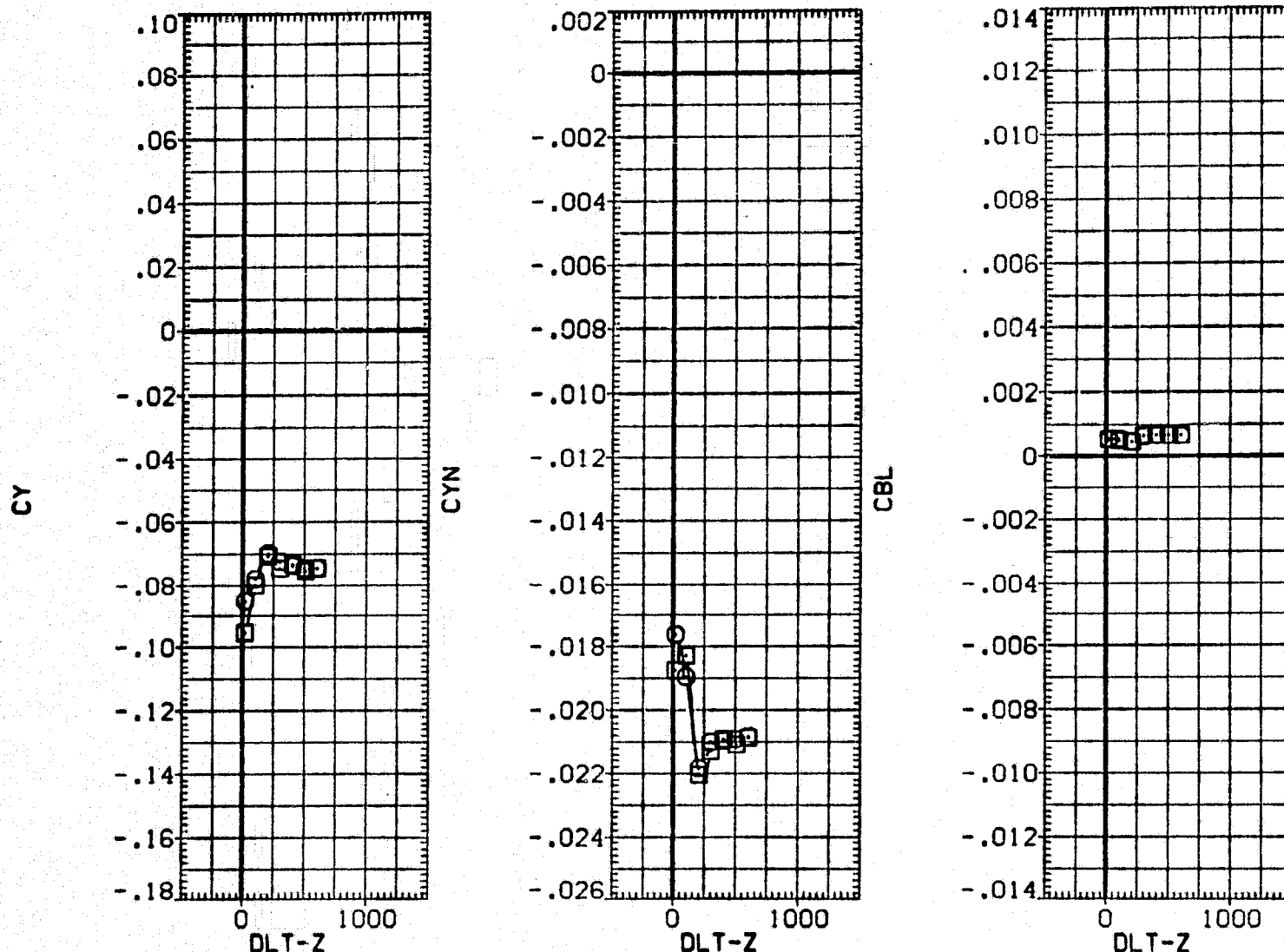


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR415)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.606		ALPHA	5.000
□	200.550	BETA	DLTALF	-10.000
◇	400.540	DLTBTA	MACH	5.930
		AILRON	ELEVON	.000
		GRID		4.000

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

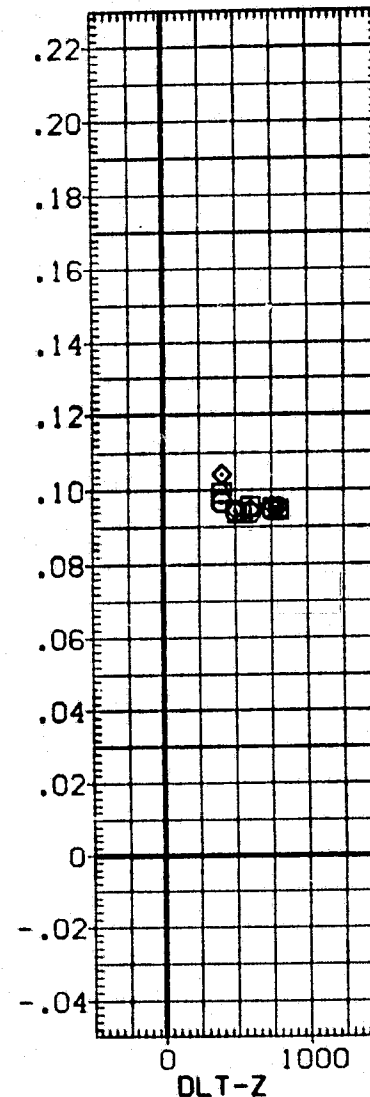
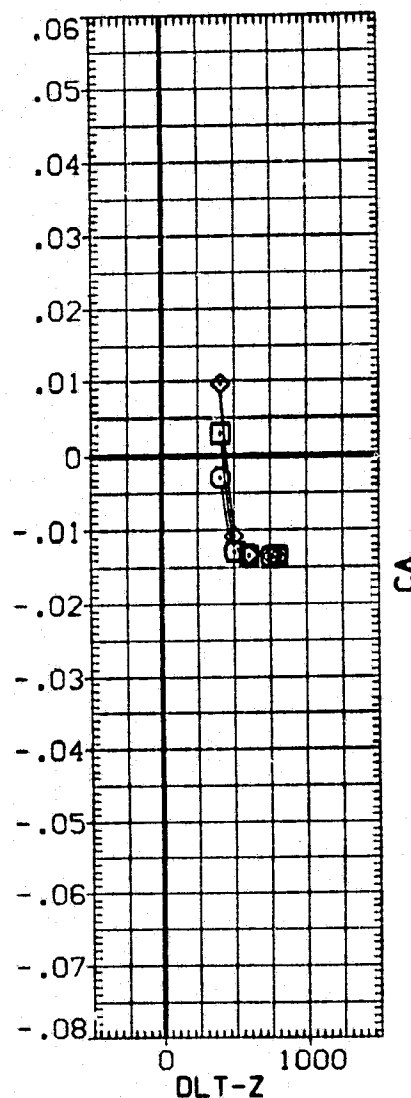
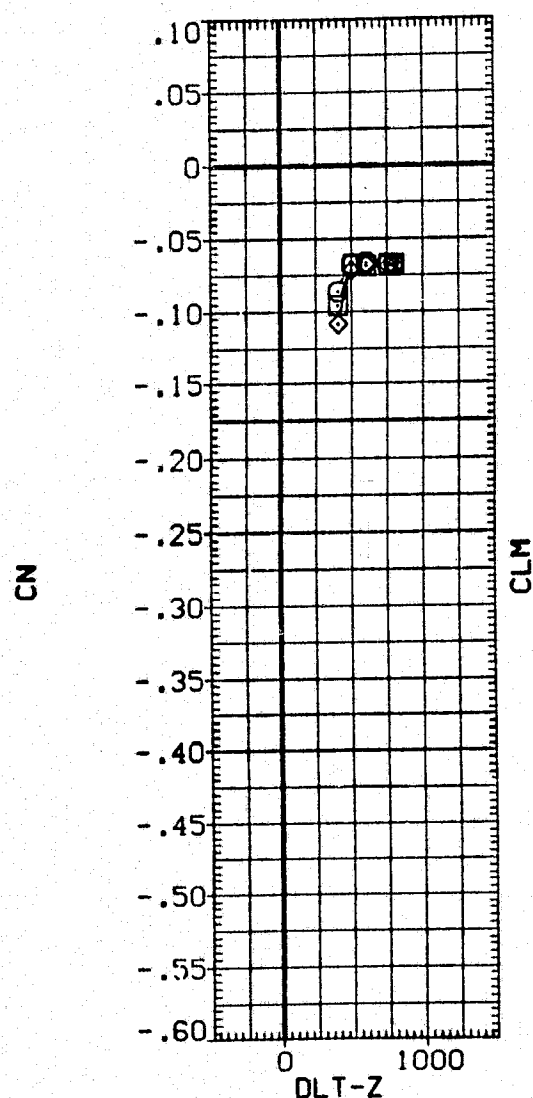


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR415)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.606	200.000	ALPHA	5.000	
	200.550	BETA	3.000	DLTALF	-10.000
	400.540	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	4.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

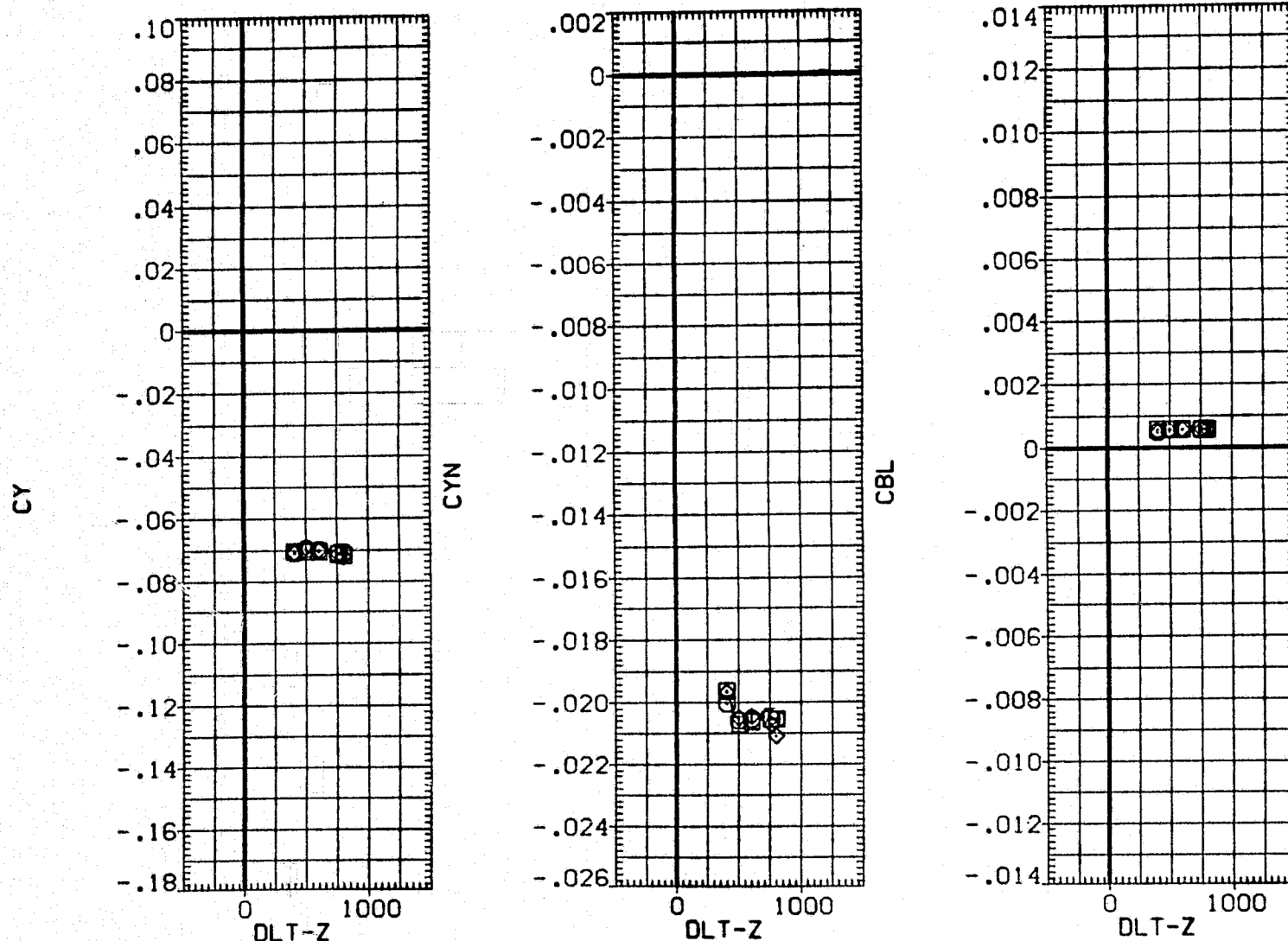


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR417)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.583	DLT-Y	200.000	ALPHA	5.000
○	200.550	BETA	3.000	DLTALF	-20.000
□	400.550	DLTBTA	3.000	MACH	5.930
◇		AILRON	.000	ELEVON	.000
		GRID	4.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

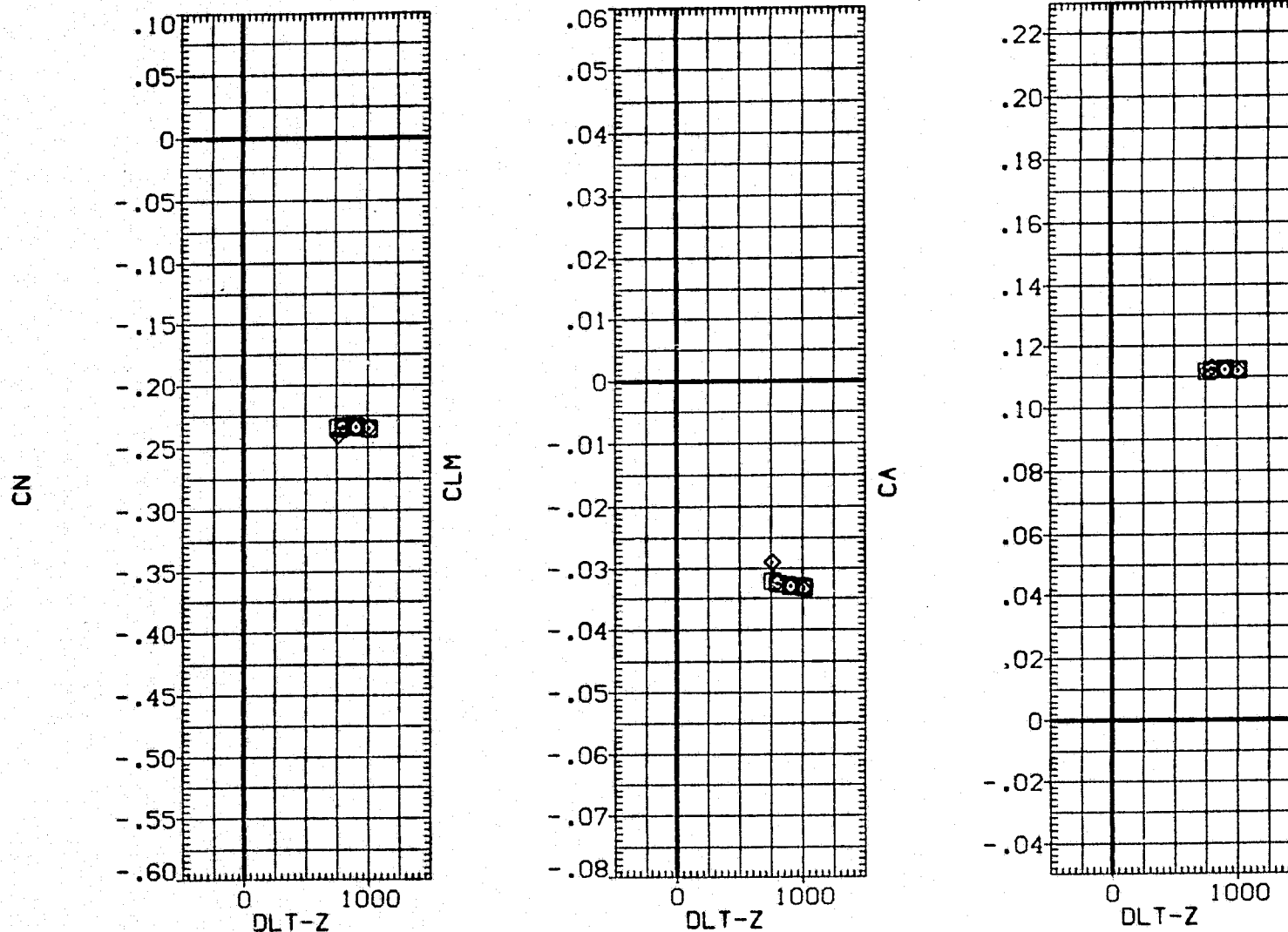


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR417)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.583		200.000	ALPHA 5.000
□	200.550	BETA	3.000	DLTALF -20.000
◇	400.550	DLTBTA	3.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	4.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ. FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

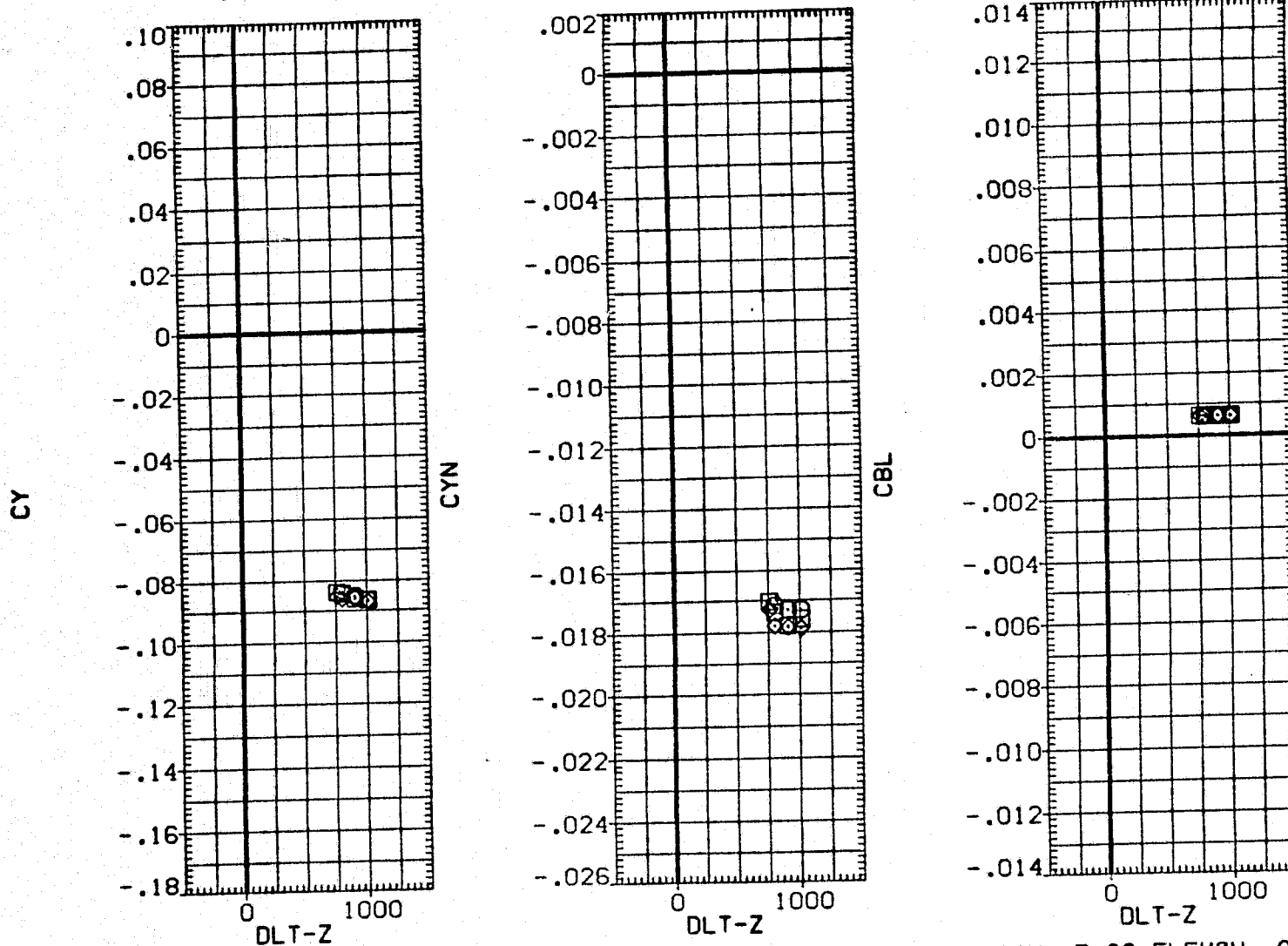


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR418)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.555	BETA	200.000	-5.000	
□	200.460	DLTBT	.000	.000	
		AILRON	3.000	5.930	
		GRID	.000	.000	
			6.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRF	1360.1000	IN. XT
YMRF	.0000	IN. YT
ZMRF	416.4000	IN. ZT
SCALE	.0100	

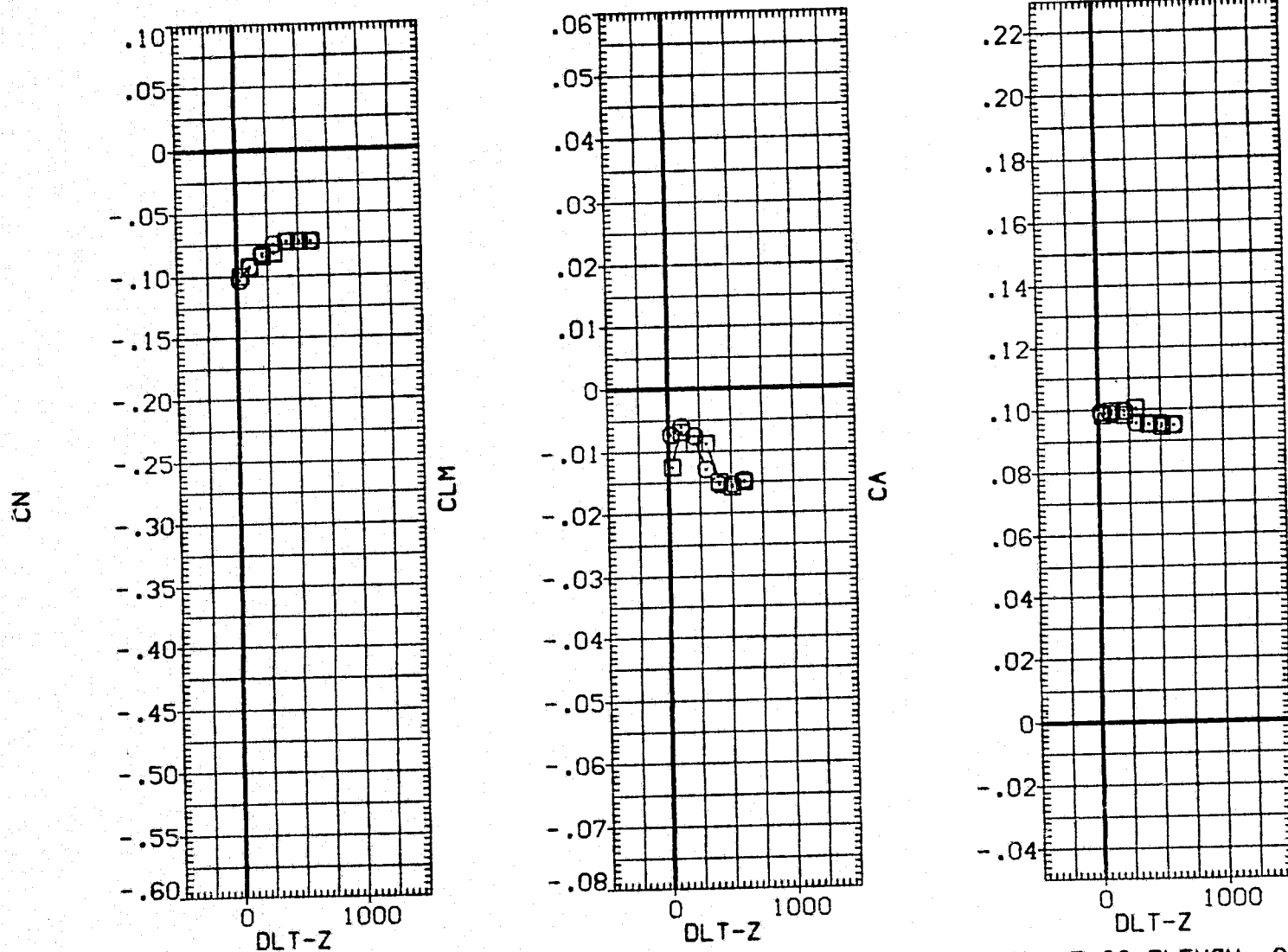


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR418)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.555	BETA	200.000	ALPHA	-5.000
□	200.460	DLTBT	.000	DLTALF	.000
		AILRON	3.000	MACH	5.930
		GRID	.000	ELEVON	.000
			6.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

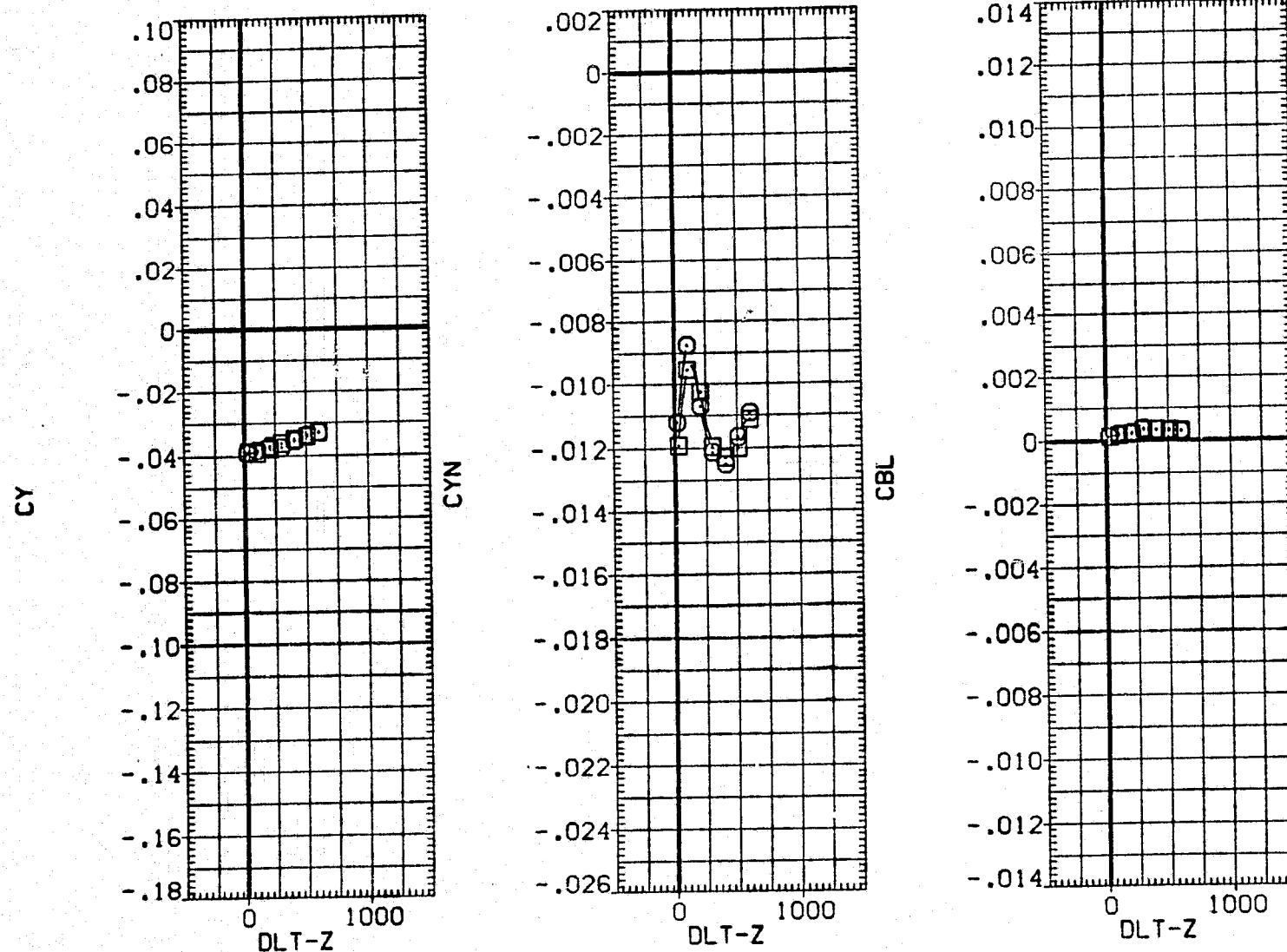


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR419)

SYMBOL	DLT-X	PARAMETRIC VALUES		
	.469	DLT-Y	200.000	ALPHA
□	200.380	BETA	.000	DLTALF
◇	400.330	DLTBTA	3.000	MACH
		AILRON	.000	ELEVON
		GRID	6.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

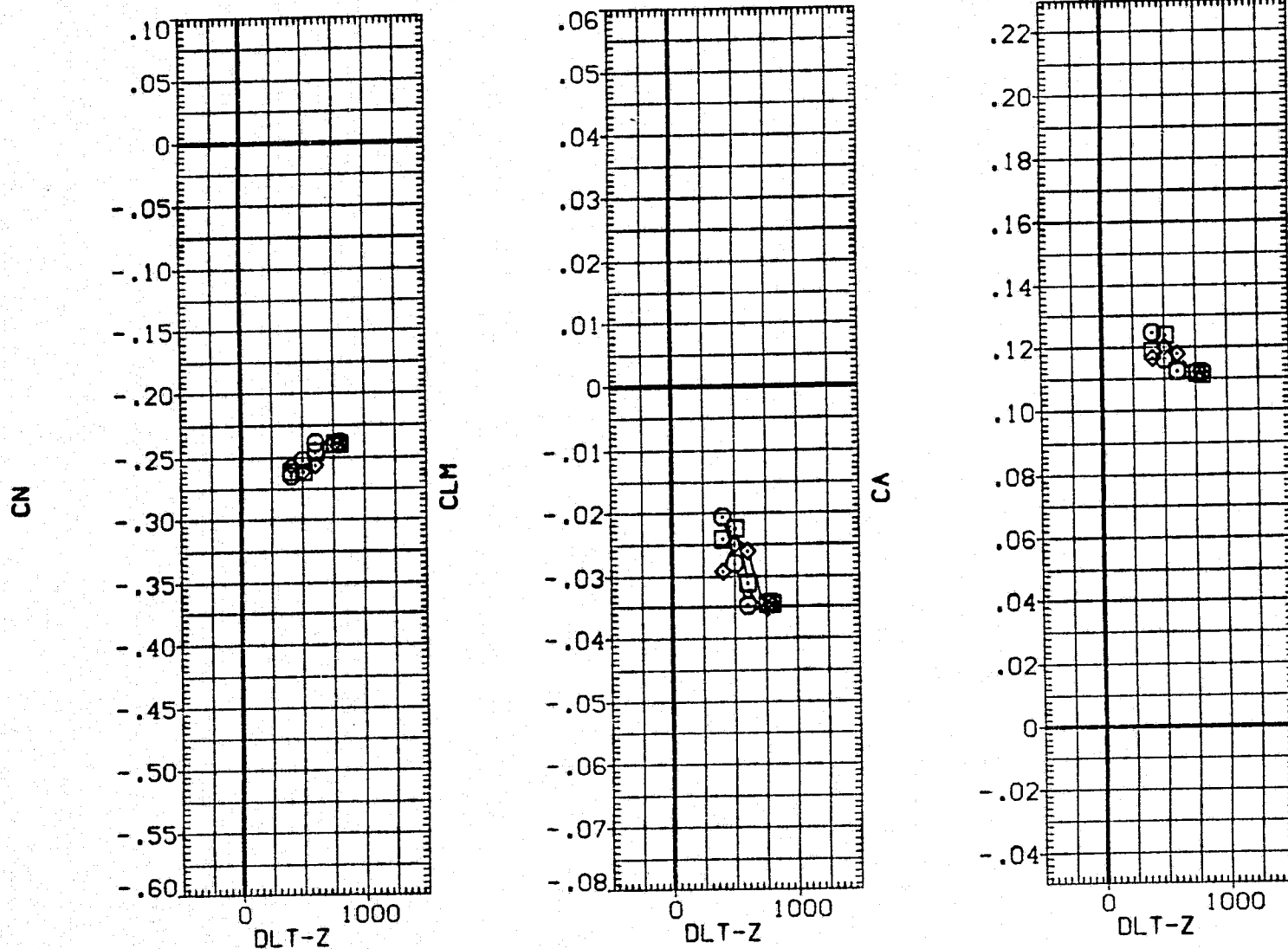


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR419)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.469	.469	.469	.469	ALPHA	-5.000
□	200.380	200.380	200.380	200.380	DLTALF	-10.000
◇	400.330	400.330	400.330	400.330	MACH	5.930
					ELEVON	.000
					GRID	6.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

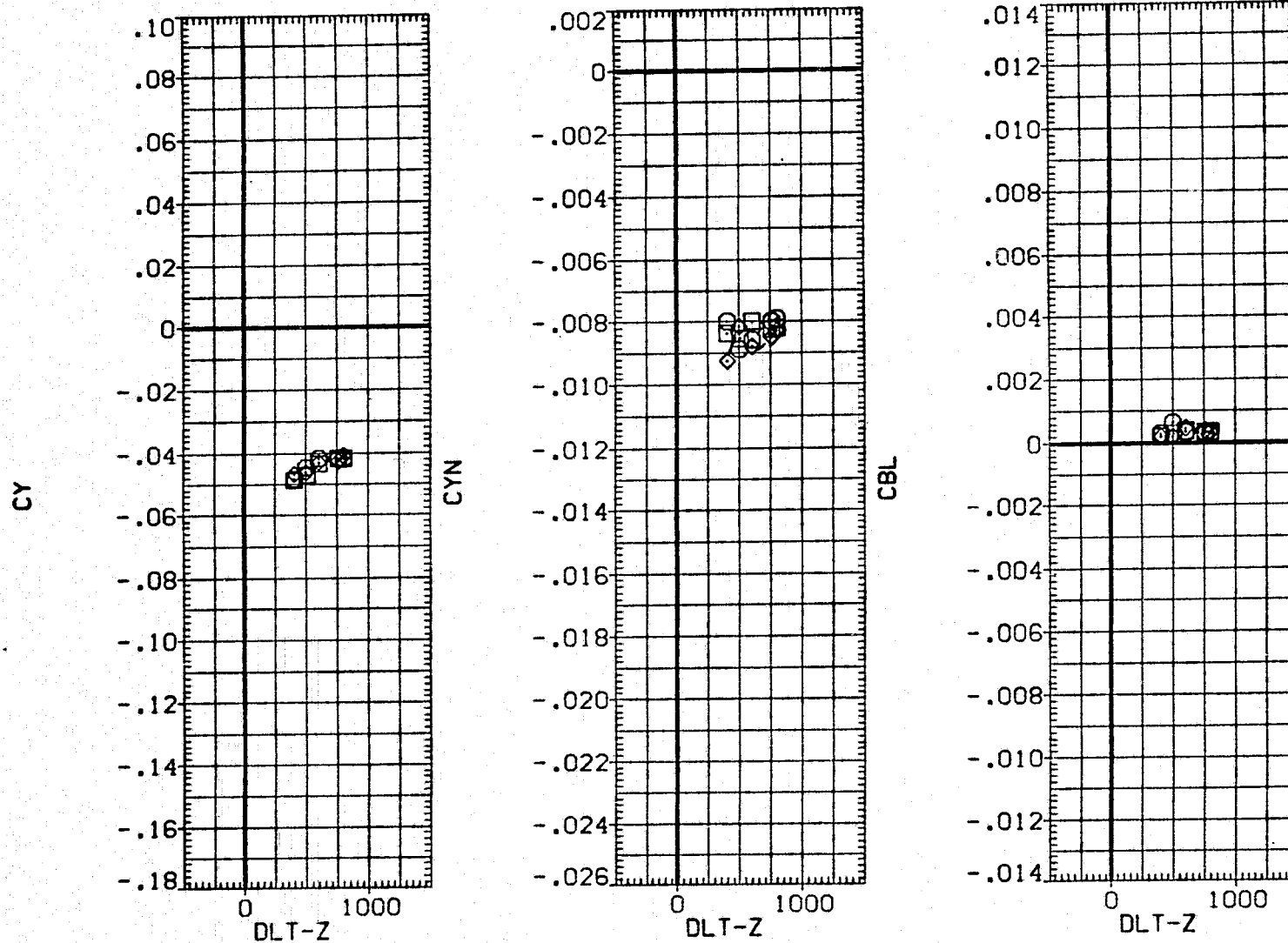


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR421)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	DLT-X	DLT-Y	200.000	ALPHA	-5.000	
○	.416	BETA	.000	DLTALF	-20.000	
□	200.470	DLTBTA	3.000	MACH	5.930	
◇	400.370	AILRON	.000	ELEVON	.000	
		GRID	6.000			

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

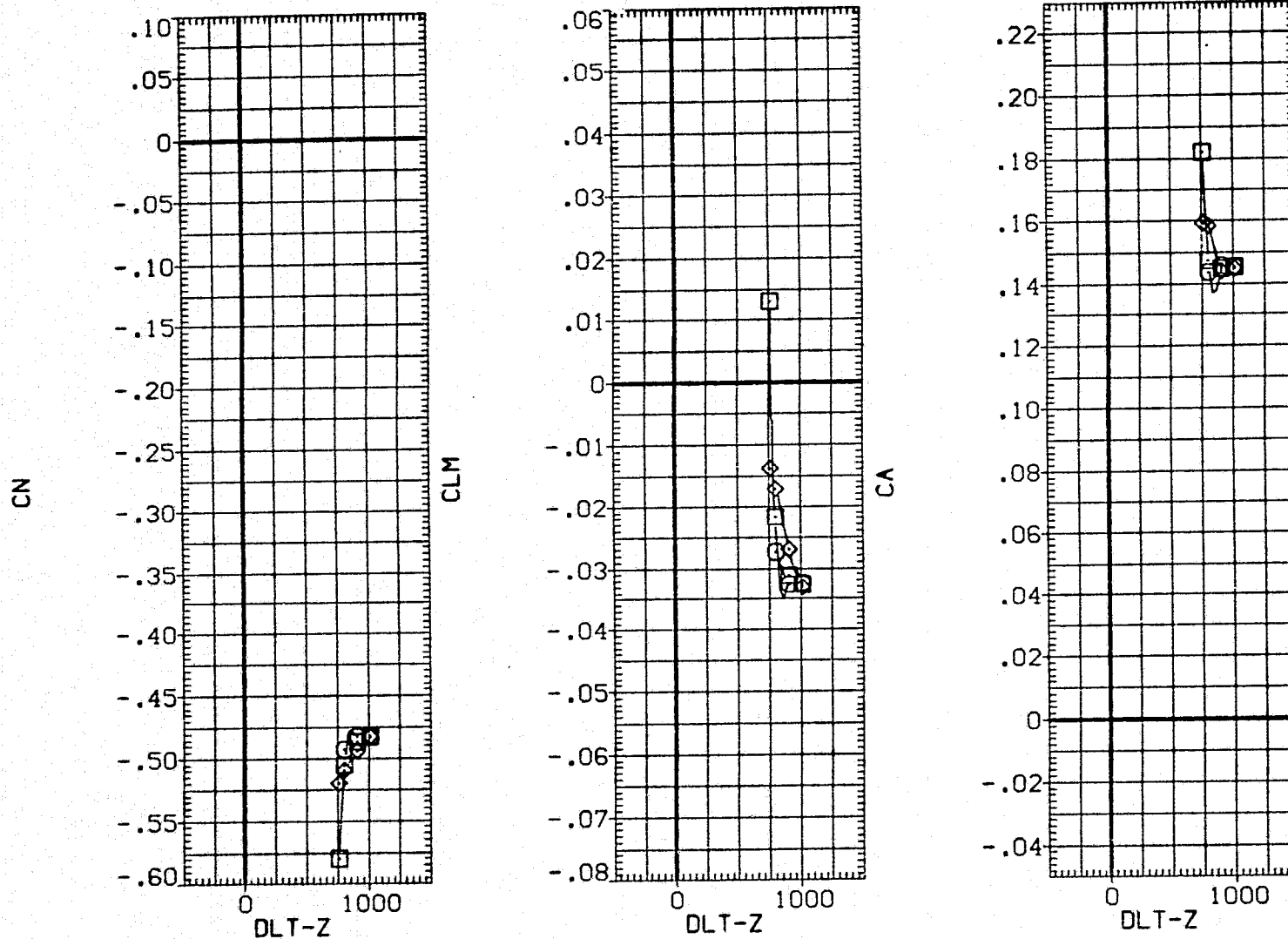


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR421)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.416	200.000	BETA	.000	-5.000
□	200.470	DLTBT	3.000	DLTALF	-20.000
◇	400.370	AILRON	.000	MACH	5.930
		GRID	6.000	ELEVON	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

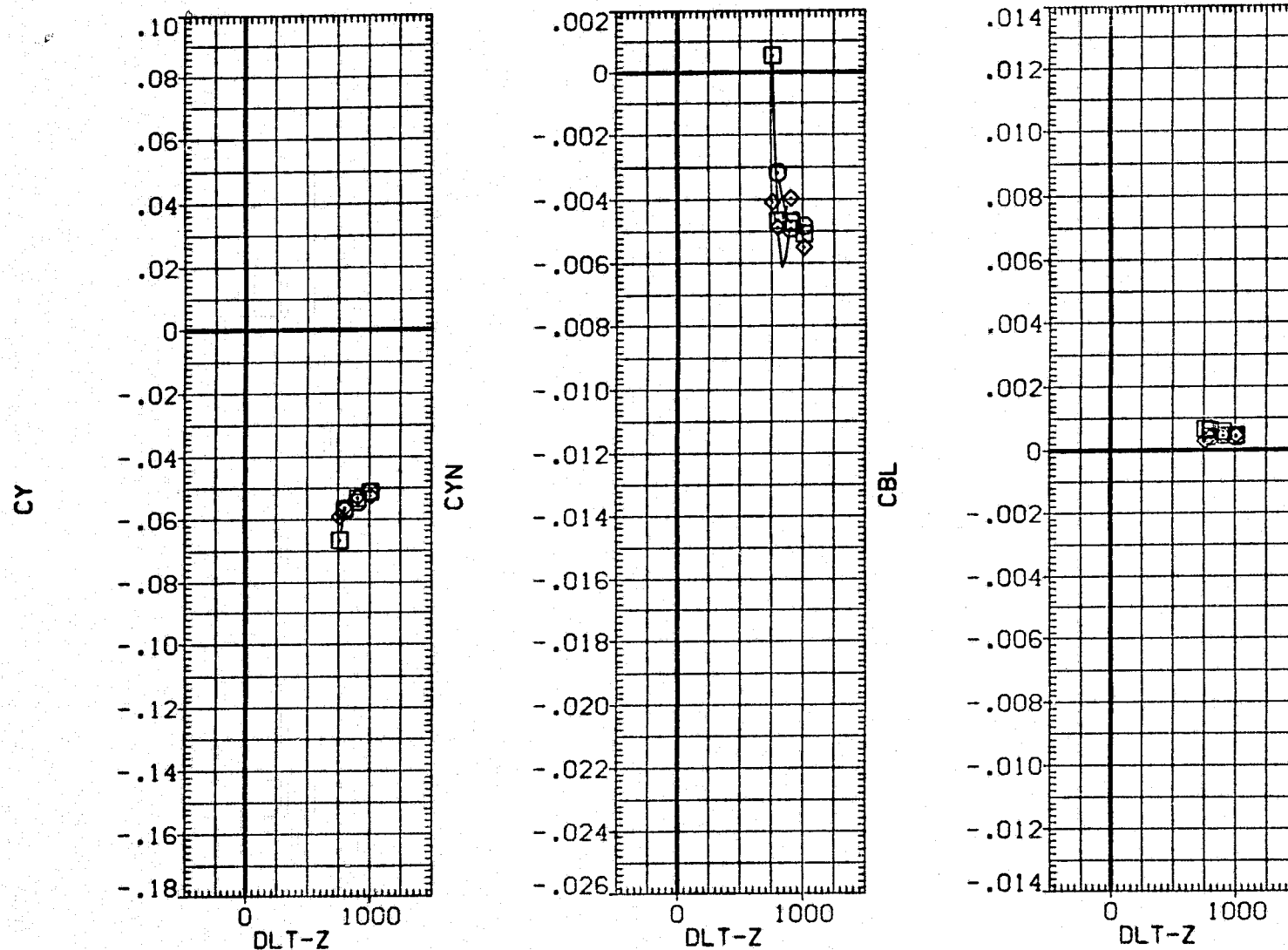


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR422)

SYMBOL	DLT-X		PARAMETRIC VALUES			
	○	□	DLT-Y	200.000	ALPHA	-5.000
			BETA <td>3.000<th>DLTALF</th><th>.000</th></td>	3.000 <th>DLTALF</th> <th>.000</th>	DLTALF	.000
			DLTBTA <td>3.000<th>MACH</th><th>5.930</th></td>	3.000 <th>MACH</th> <th>5.930</th>	MACH	5.930
			AILRON <td>.000<th>ELEVON</th><th>.000</th></td>	.000 <th>ELEVON</th> <th>.000</th>	ELEVON	.000
			GRID <td>7.000</td> <td></td> <td></td>	7.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

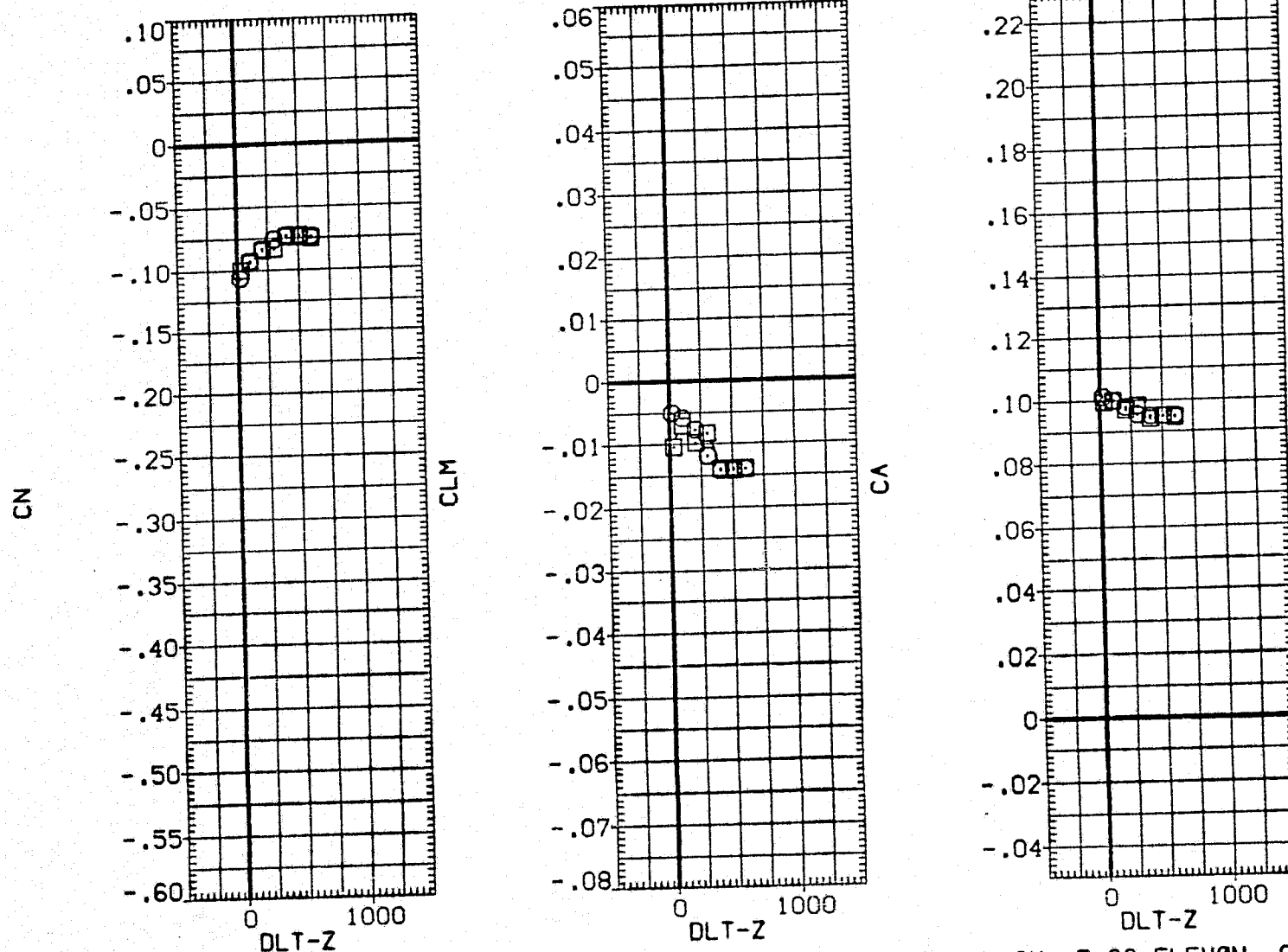


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR422)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
□	.596	200.600	3.000	.000
○			3.000	5.930
			.000	.000
			7.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

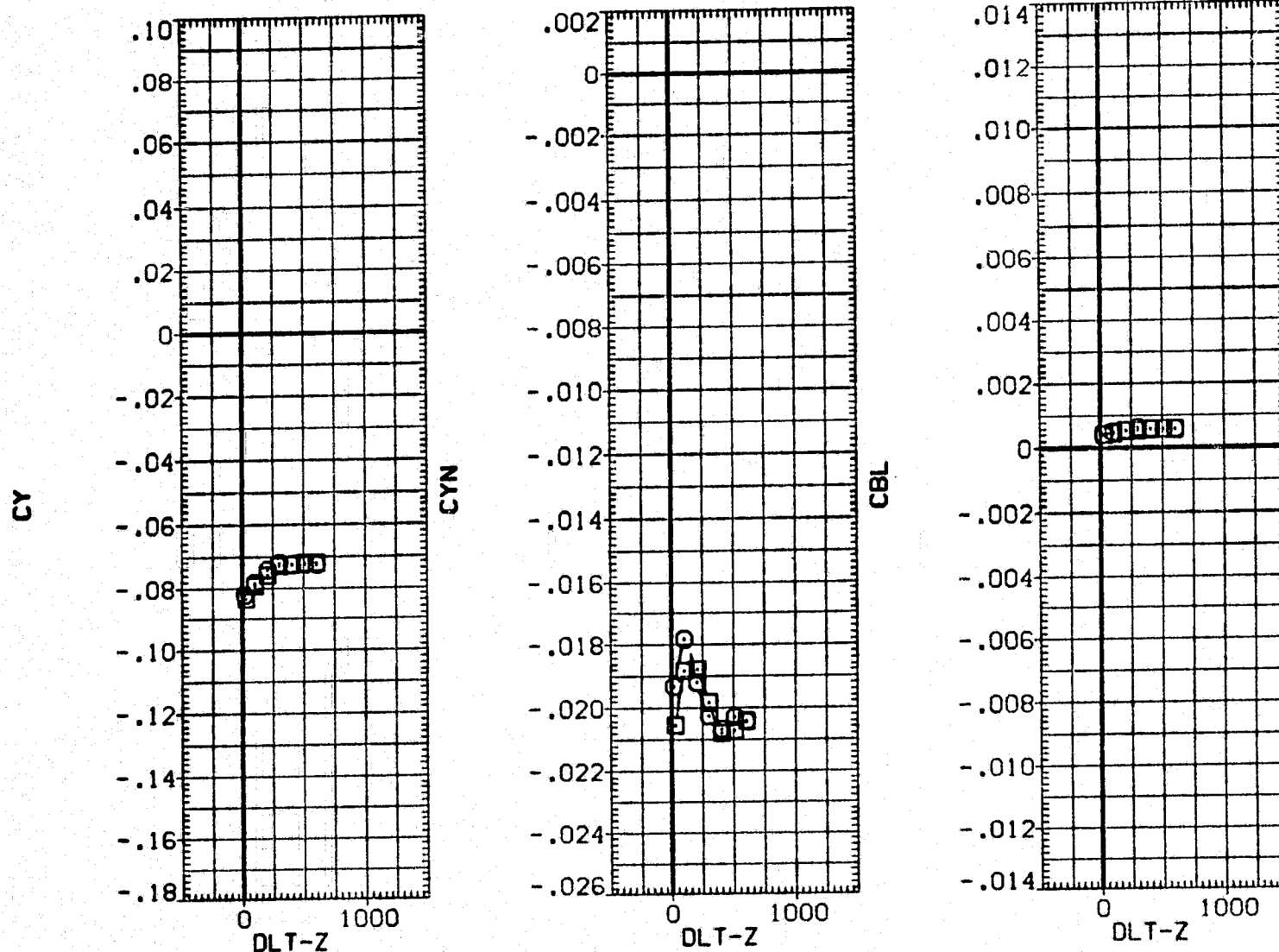


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR423)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	.461	DLT-Y	200.000	ALPHA	-5.000
○	200.500	BETA	3.000	DLTALF	-10.000
□	400.400	DLTBTA	3.000	MACH	5.930
◇		AILRON	.000	ELEVON	.000
		GRID	7.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

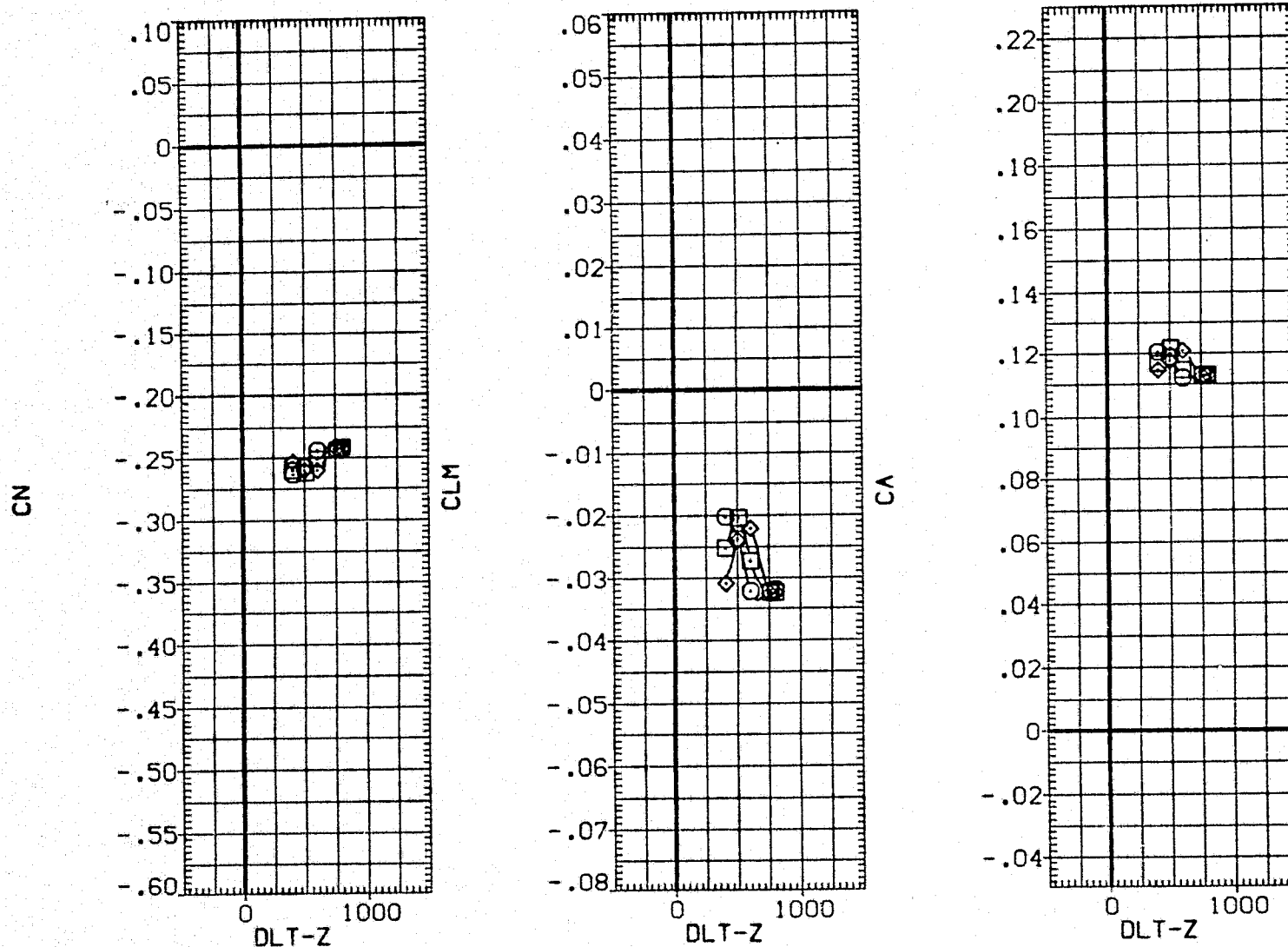


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR423)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.461		200.000	ALPHA -5.000
□	200.500	BETA	3.000	DLTALF -10.000
◇	400.400	DLTBTA	3.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	7.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

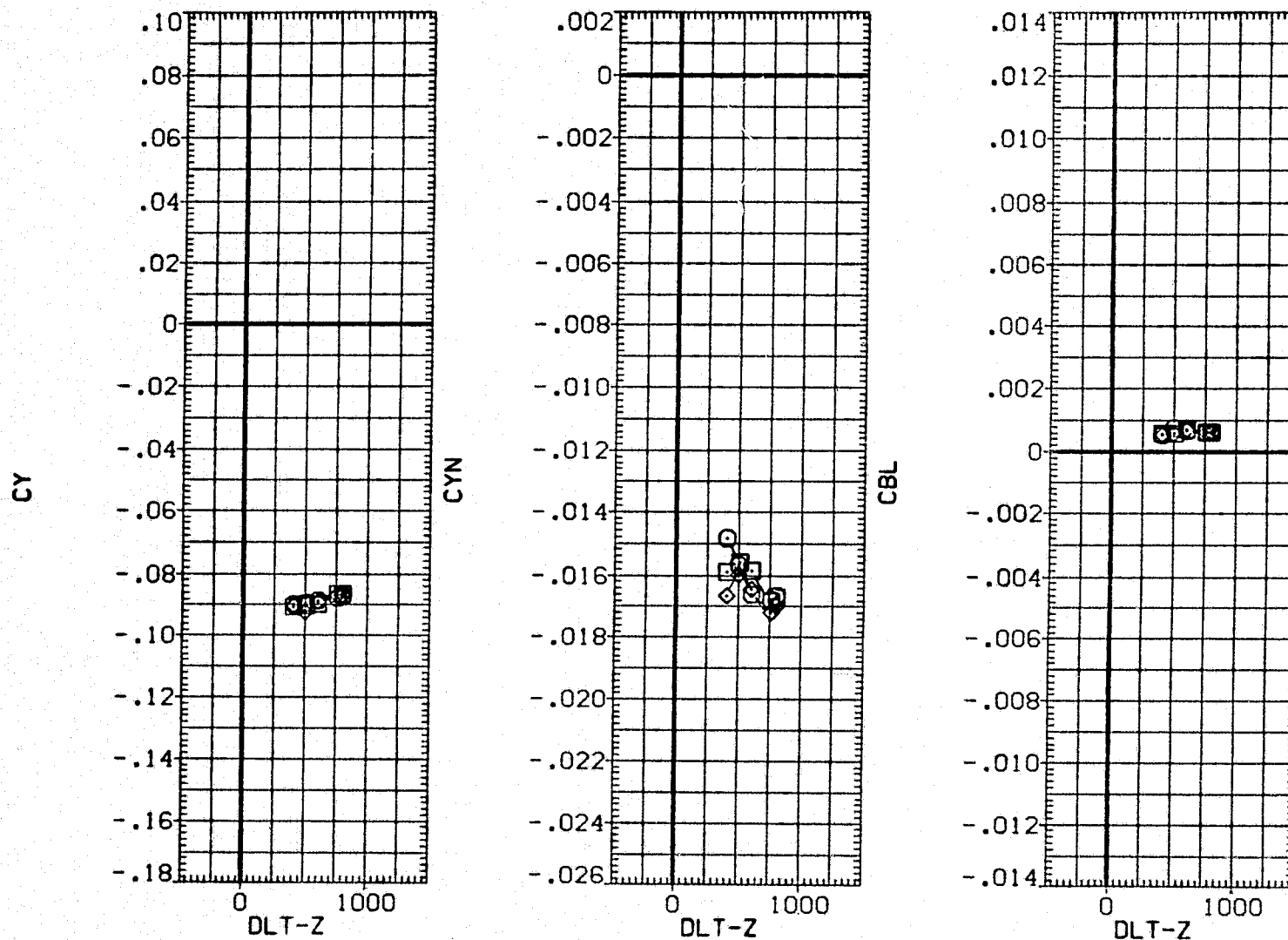


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR425)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.403	200.280	200.000	-5.000
□	200.280	BETA	3.000	-20.000
◇	400.430	DLTBTA	3.000	5.930
		AIRLON	.000	ELEVON
		GRID	7.000	

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

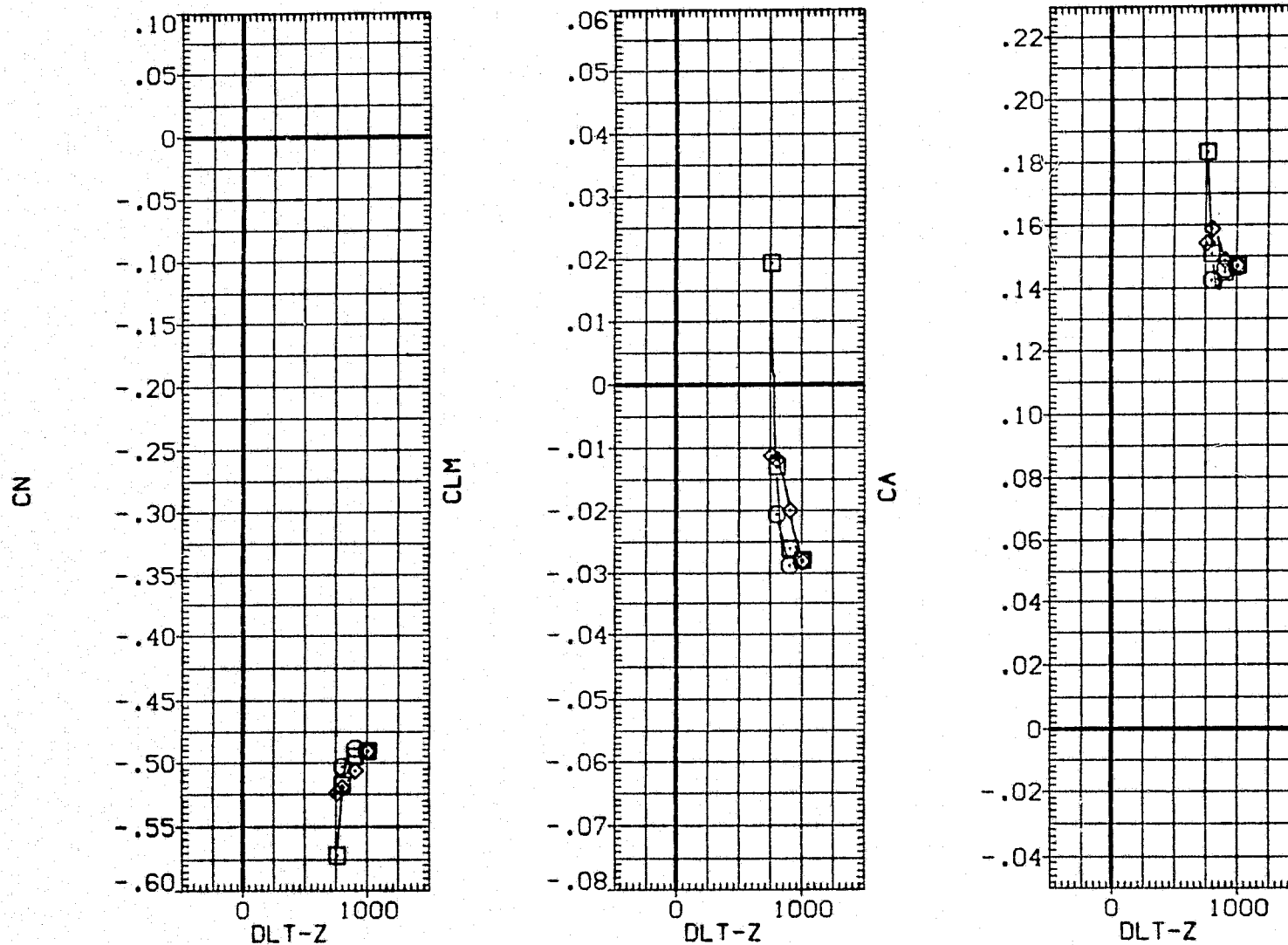


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR425)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.403	.403	.403	.403	ALPHA	-5.000
□	200.280	200.280	BETA	BETA	DLTALF	-20.000
◇	400.430	400.430	DLTBTA	DLTBTA	MACH	5.930
			AILRON	AILRON	ELEVON	.000
			GRID	GRID		7.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

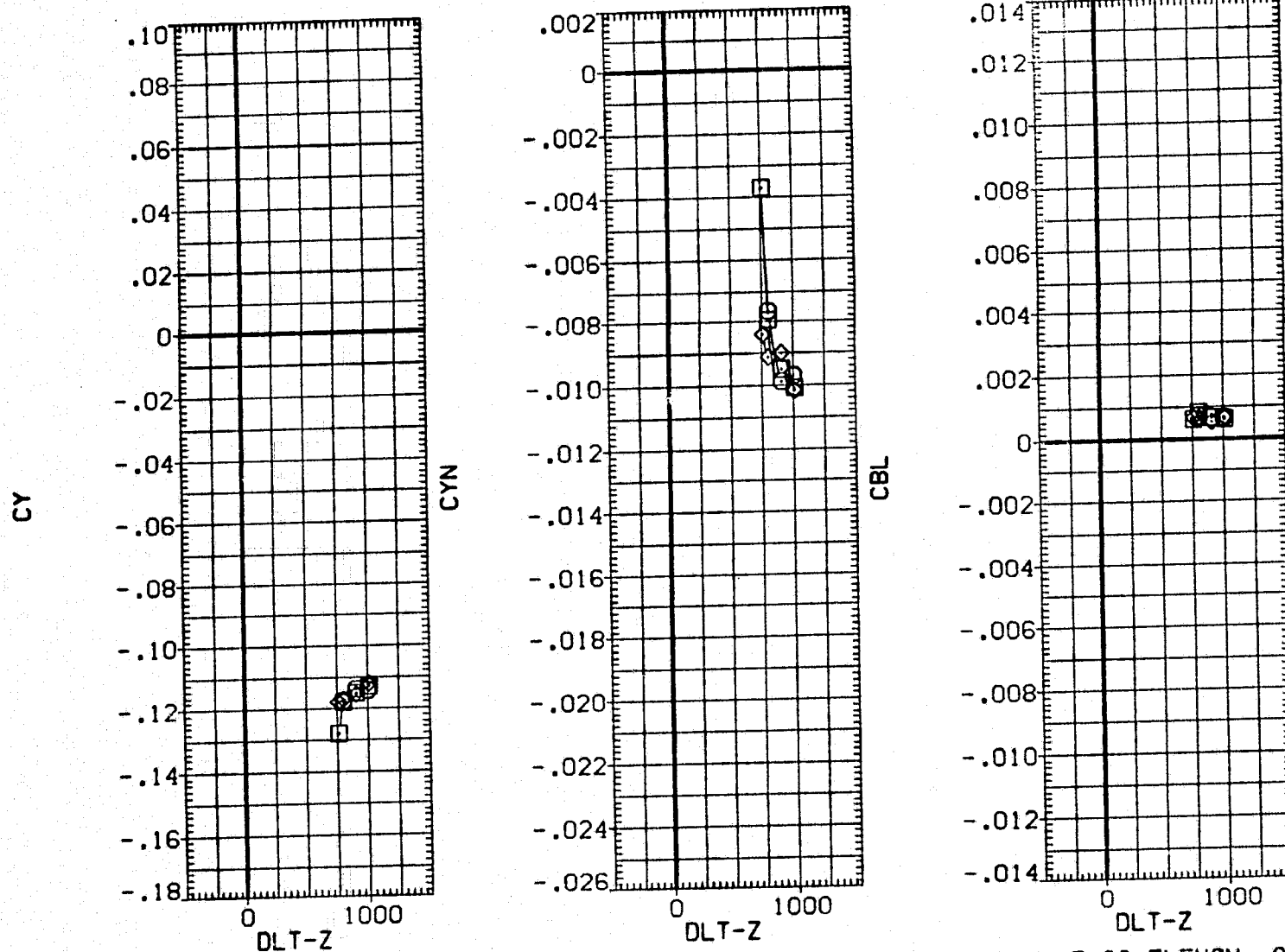


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR430)

SYMBOL	DLT-X		DLT-Y		PARAMETRIC VALUES	
	DLT-X	DLT-Y	DLT-X	DLT-Y	PARAMETRIC VALUES	PARAMETRIC VALUES
○	.475	200.500	200.000	BETA	ALPHA	10.000
□	200.500	DLTBT	.000	DLTBT	DLTALF	-10.000
◇	400.580	DLTBT	3.000	MACH	5.930	
		AILRON	.000	ELEVON	.000	
		GRID	23.000			

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

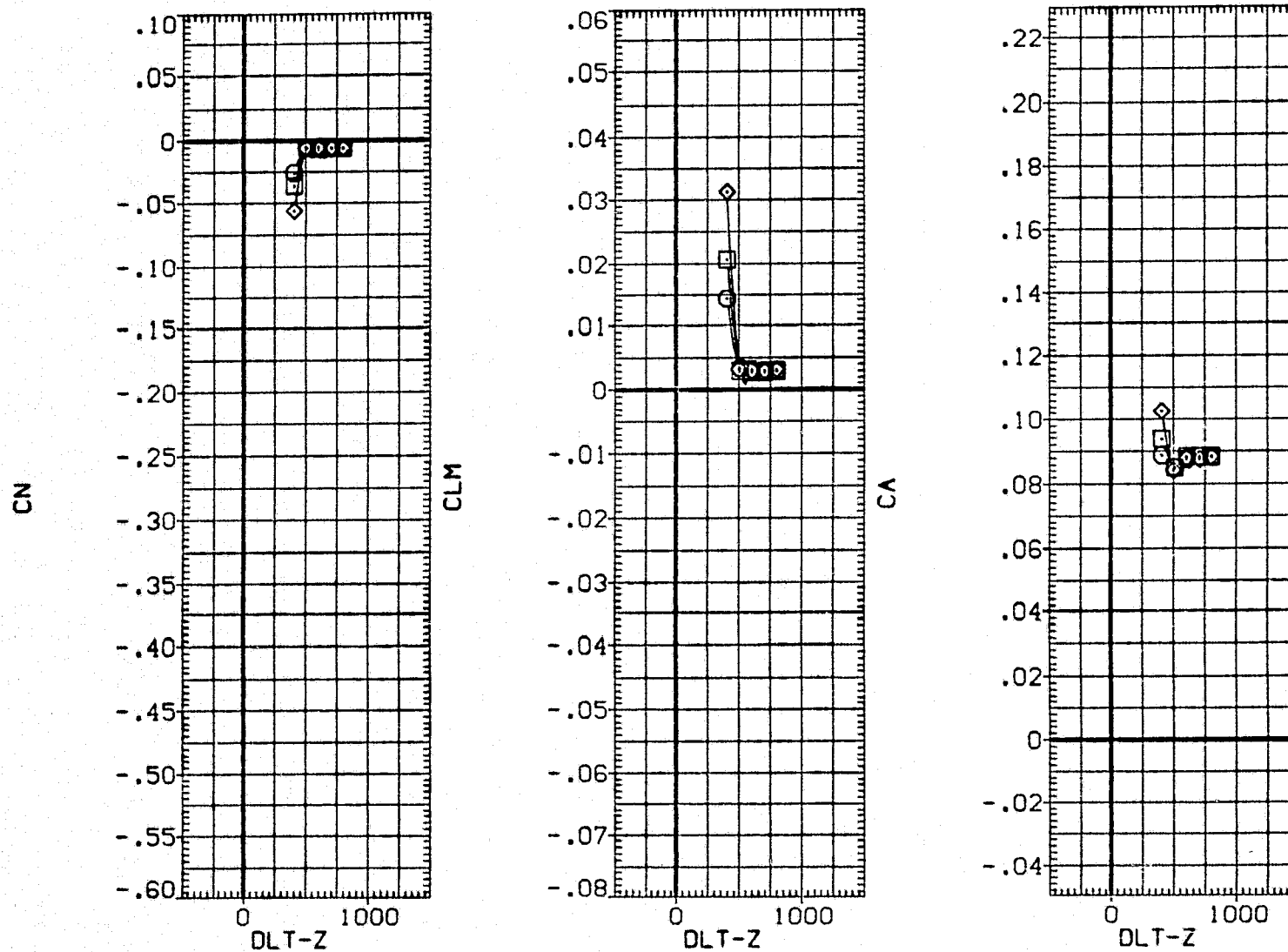


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR430)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	10.000
○	.475	200.500	BETA	.000	DLTALF
□	200.500	DLTBT	3.000	MACH	5.930
◇	400.580	AILRON	.000	ELEVON	.000
		GRID	23.000		

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

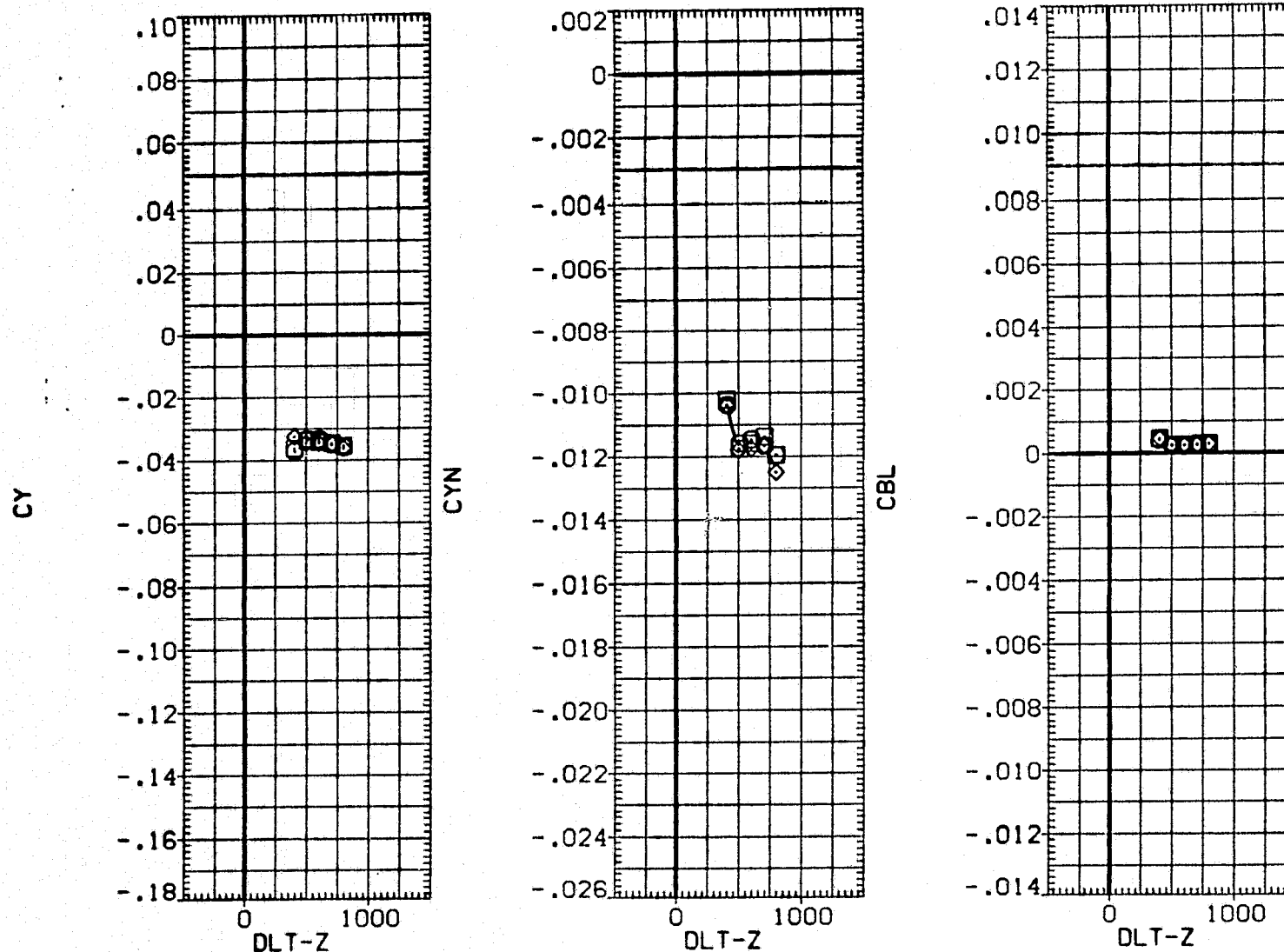


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)



C

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR431)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.437	200.000	ALPHA	10.000
□	200.440	.000	DLTALF	-20.000
◇	400.530	3.000	MACH	5.930
		.000	ELEVON	.000
		23.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

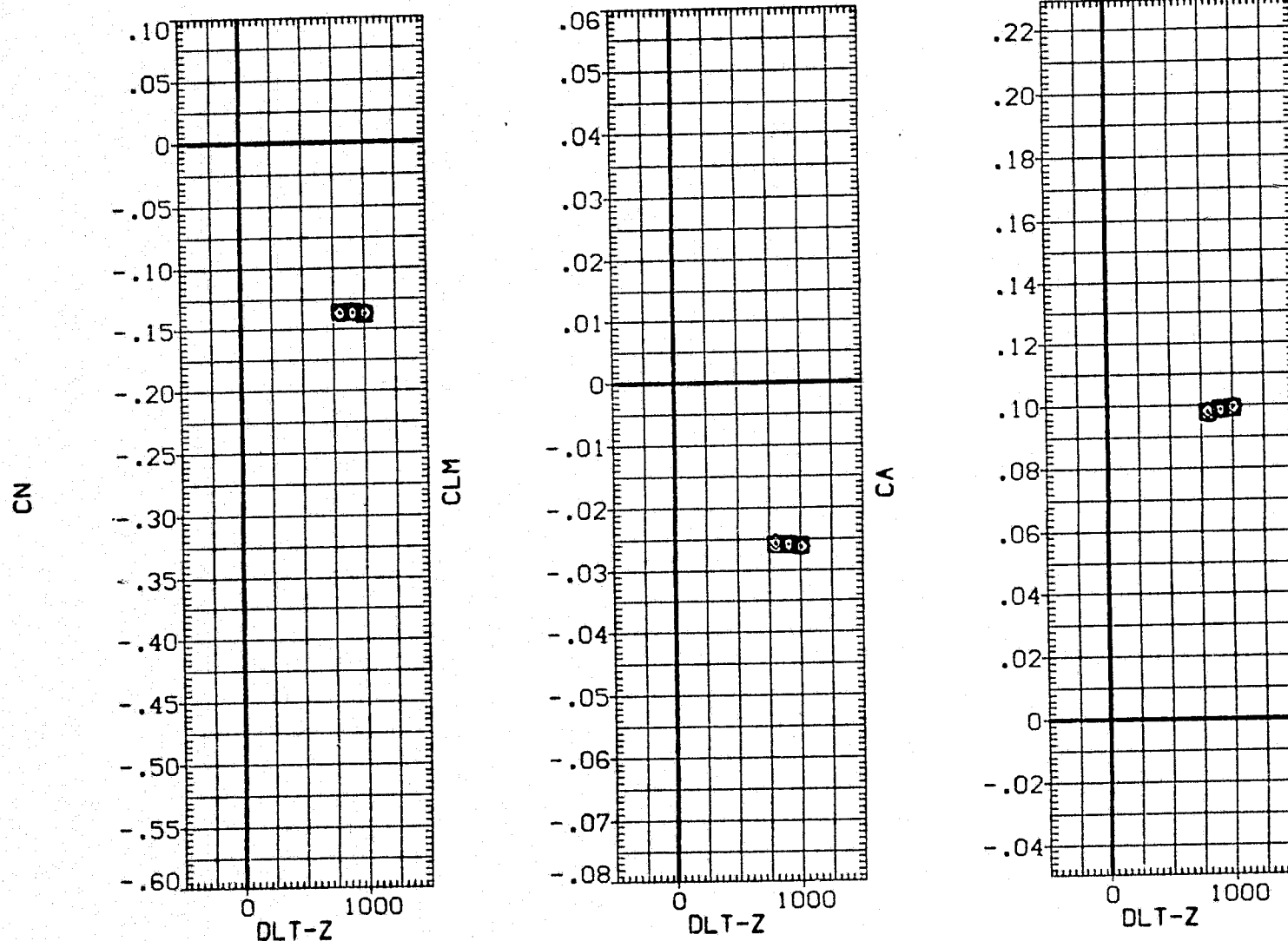


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR431)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.437	200.000	10.000	-20.000
□	200.440	BETA	.000	5.930
◇	400.530	DLTBTA	3.000	.000
		AILRON	.000	
		GRID	23.000	

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

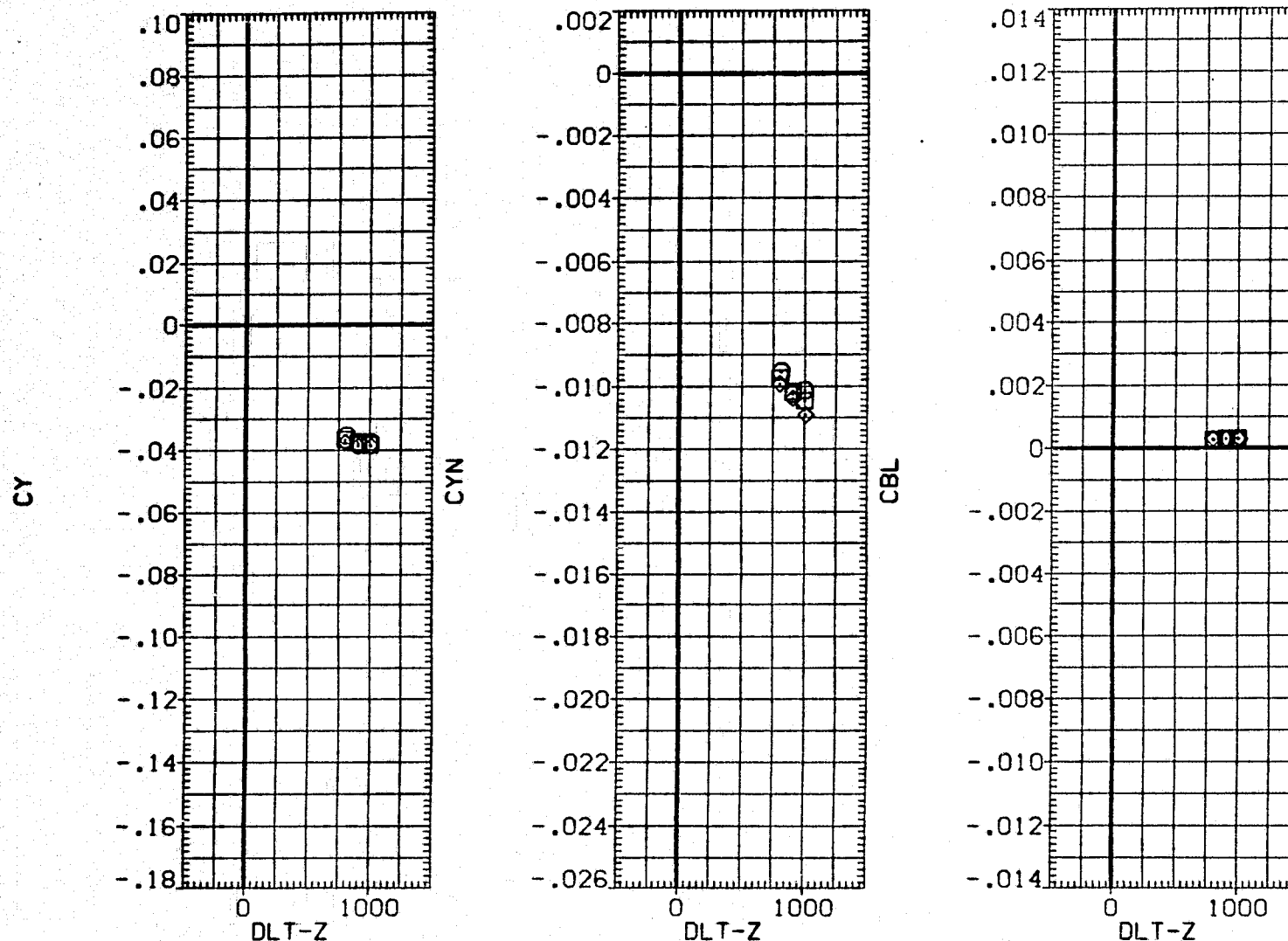


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR432)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.487		ALPHA	10.000
□	200.500	BETA	3.000	DLTALF -10.000
◇	400.640	DLTBTA	3.000	MACH 5.930
		AILRON	.000	ELEVON .000
		GRID	27.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XM RP	1360.1000	IN. XT
YM RP	.0000	IN. YT
ZM RP	416.4000	IN. ZT
SCALE	.0100	

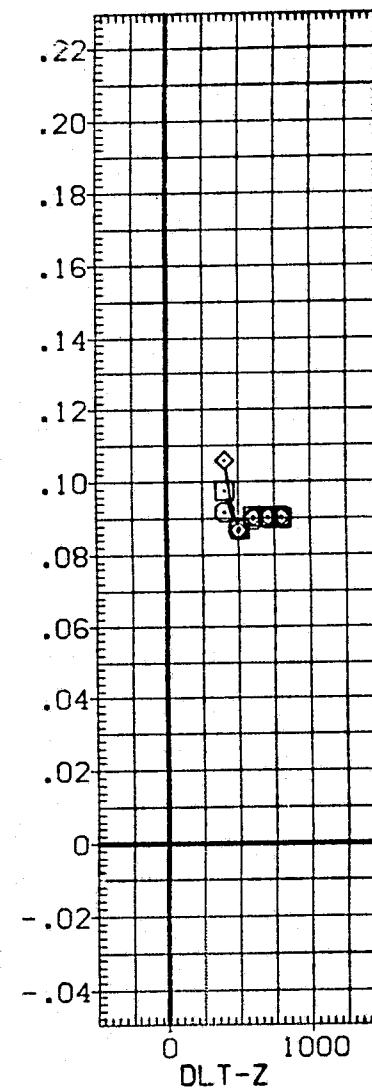
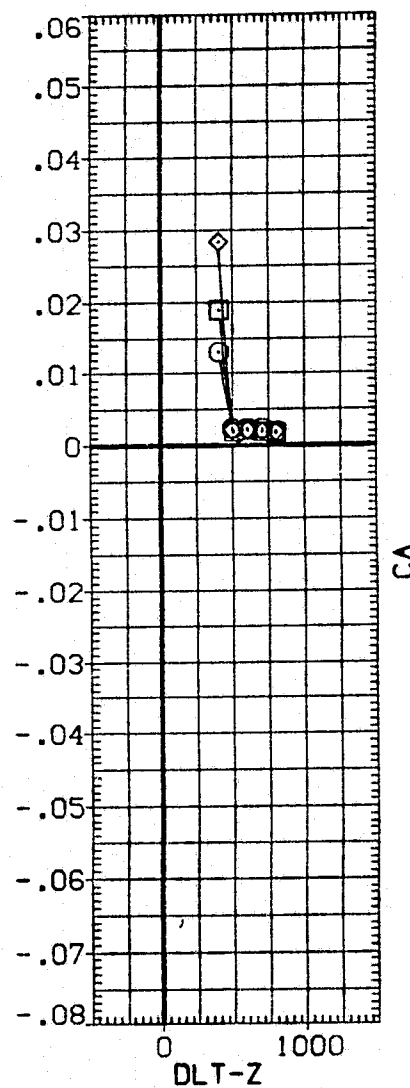
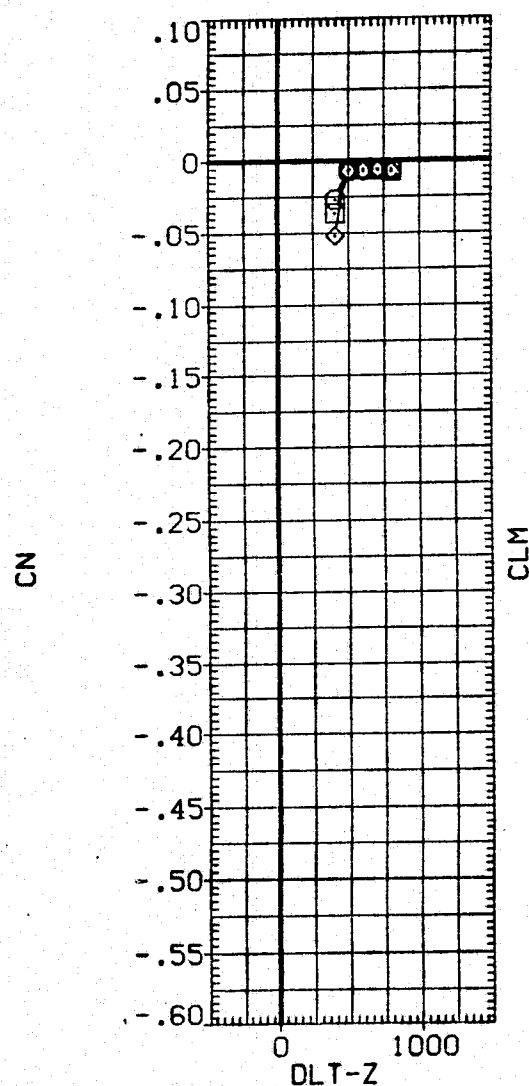


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR432)

SYMBOL	DLT-X	PARAMETRIC VALUES			
		DLT-Y	200.000	ALPHA	10.000
□	200.500	BETA	3.000	DLTALF	-10.000
◇	400.640	DLTBTA	3.000	MACH	5.930
		AILRON	.000	ELEVON	.000
		GRID	27.000		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

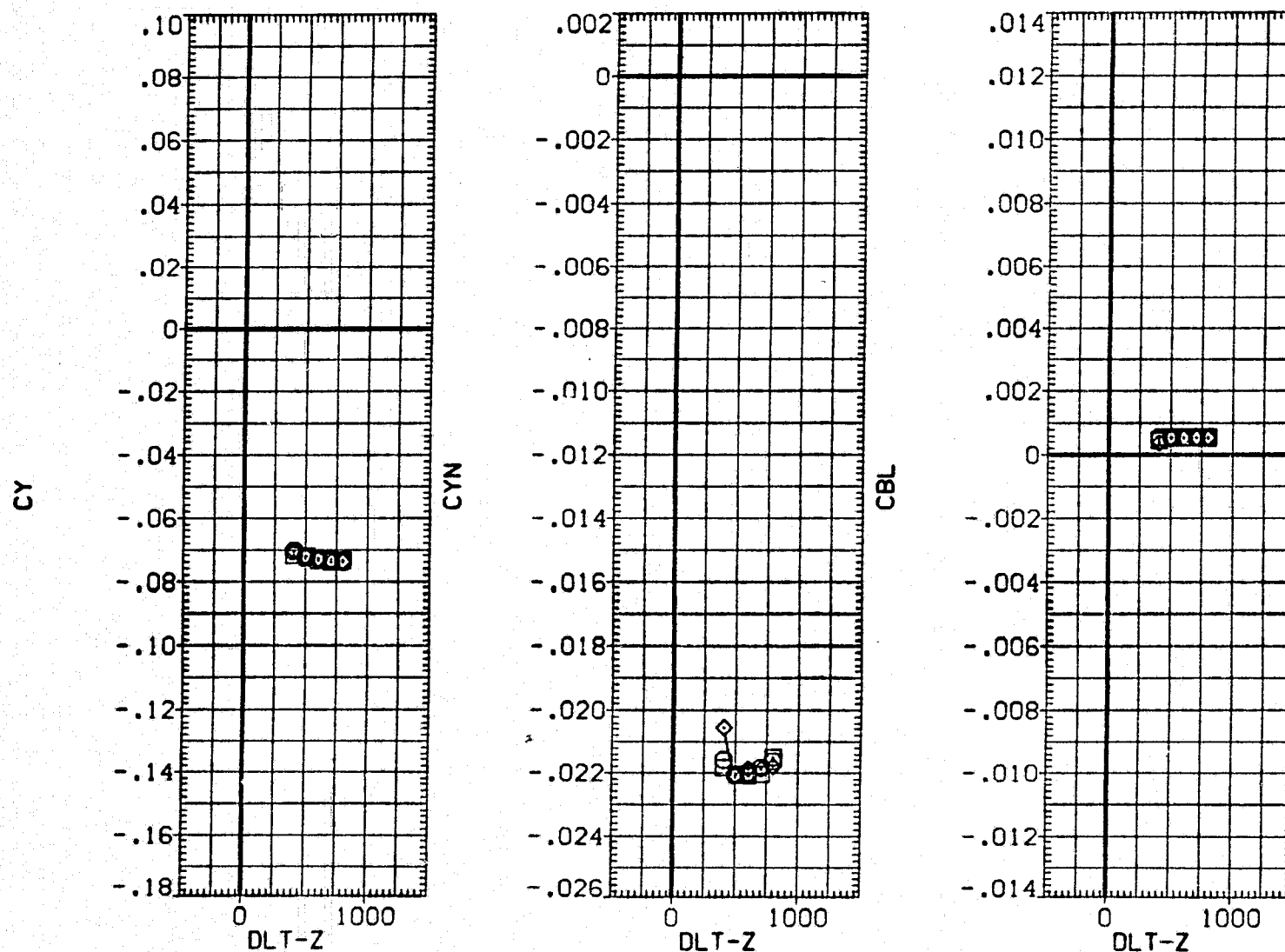


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR433)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	DLTALF
○	.497	200.000	3.000	10.000	-20.000
□	200.510	BETA	3.000	MACH	5.930
◇	400.640	DLTBT	.000	ELEVON	.000
		AILRON	27.000		
		GRID			

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRF	1360.1000 IN. XT
YMRF	.0000 IN. YT
ZMRF	416.4000 IN. ZT
SCALE	.0100

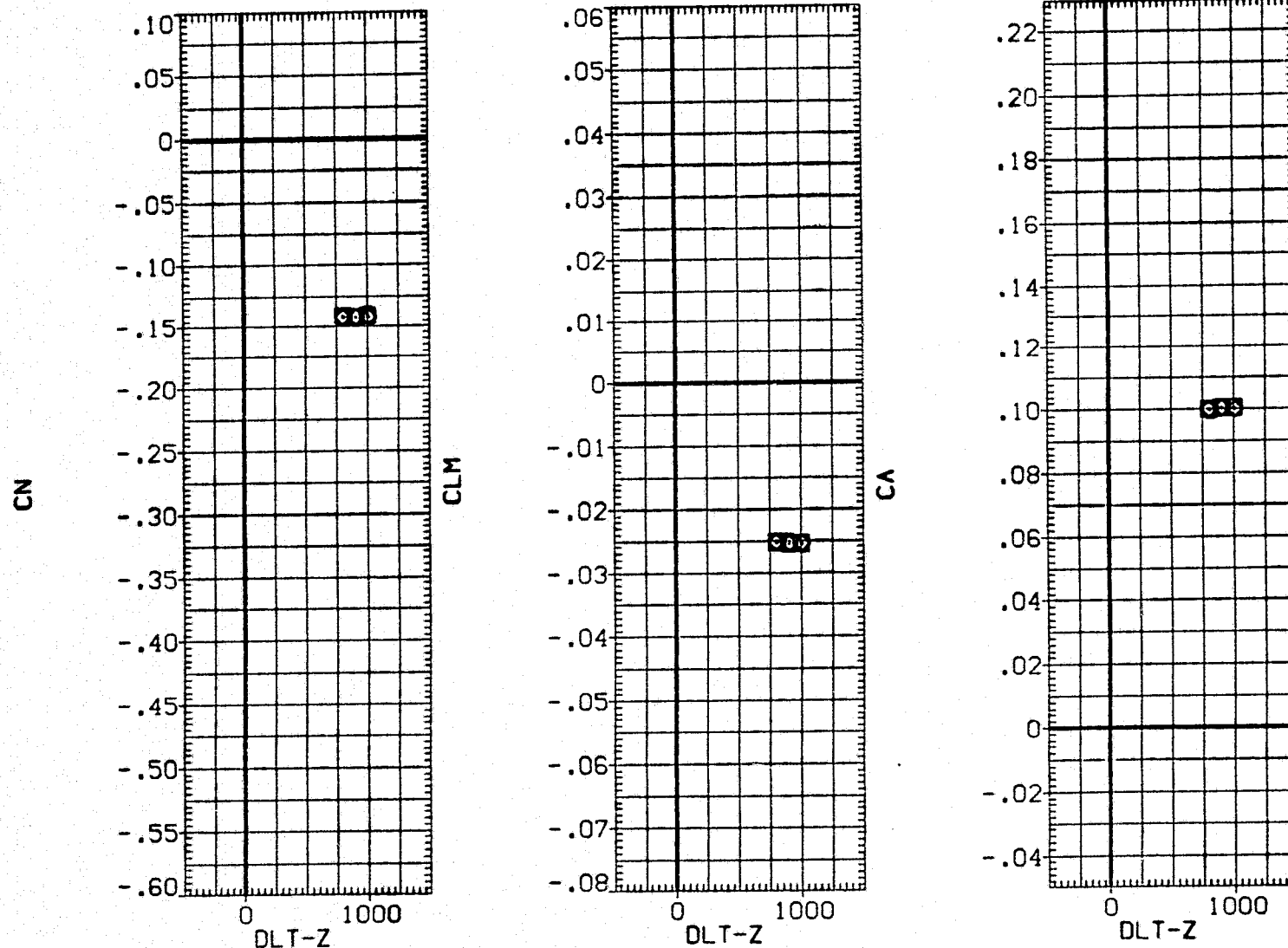


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR433)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES		
	.497	200.510	200.000	ALPHA	10.000
		400.640	3.000	DLTALF	-20.000
			3.000	MACH	5.930
			.000	ELEVON	.000
		GRID	27.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	.416.4000	IN. ZT
SCALE	.0100	

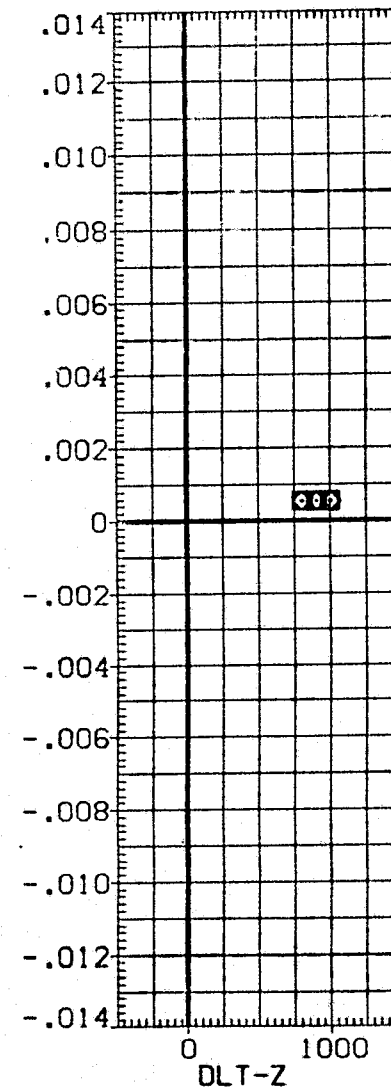
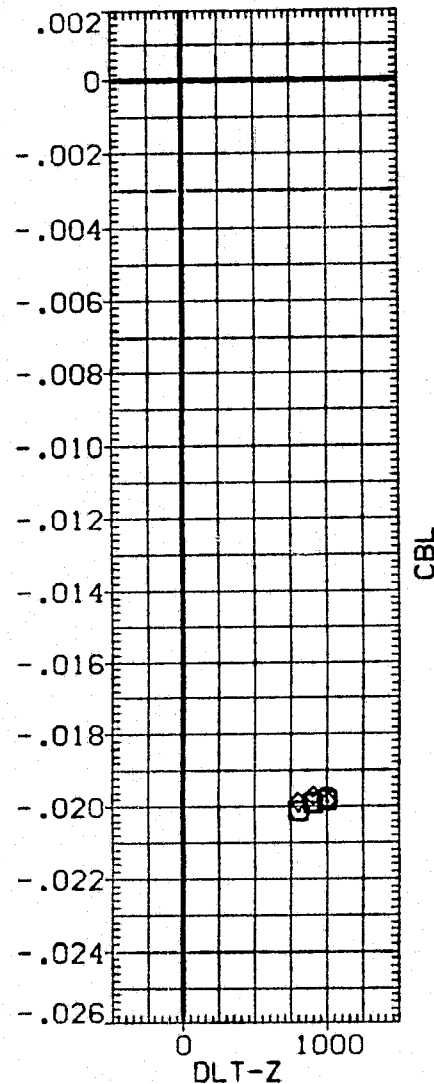
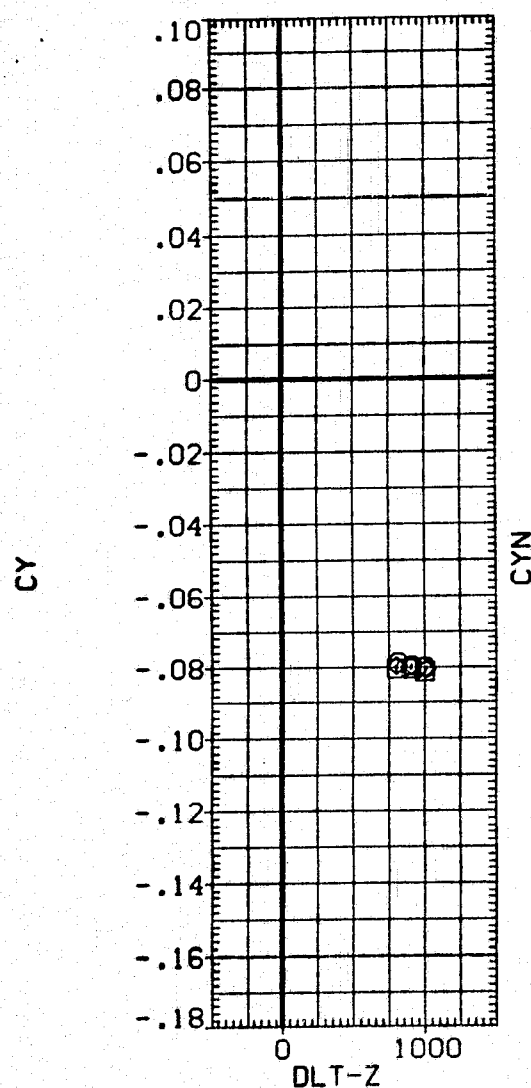


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR428)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	
○	.443	200.000	BETA	.000	DLTALF
□	200.550	3.000	DLTBTA	5.930	MACH
		.000	AILRON	.000	ELEVON
		9.000	GRID		

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

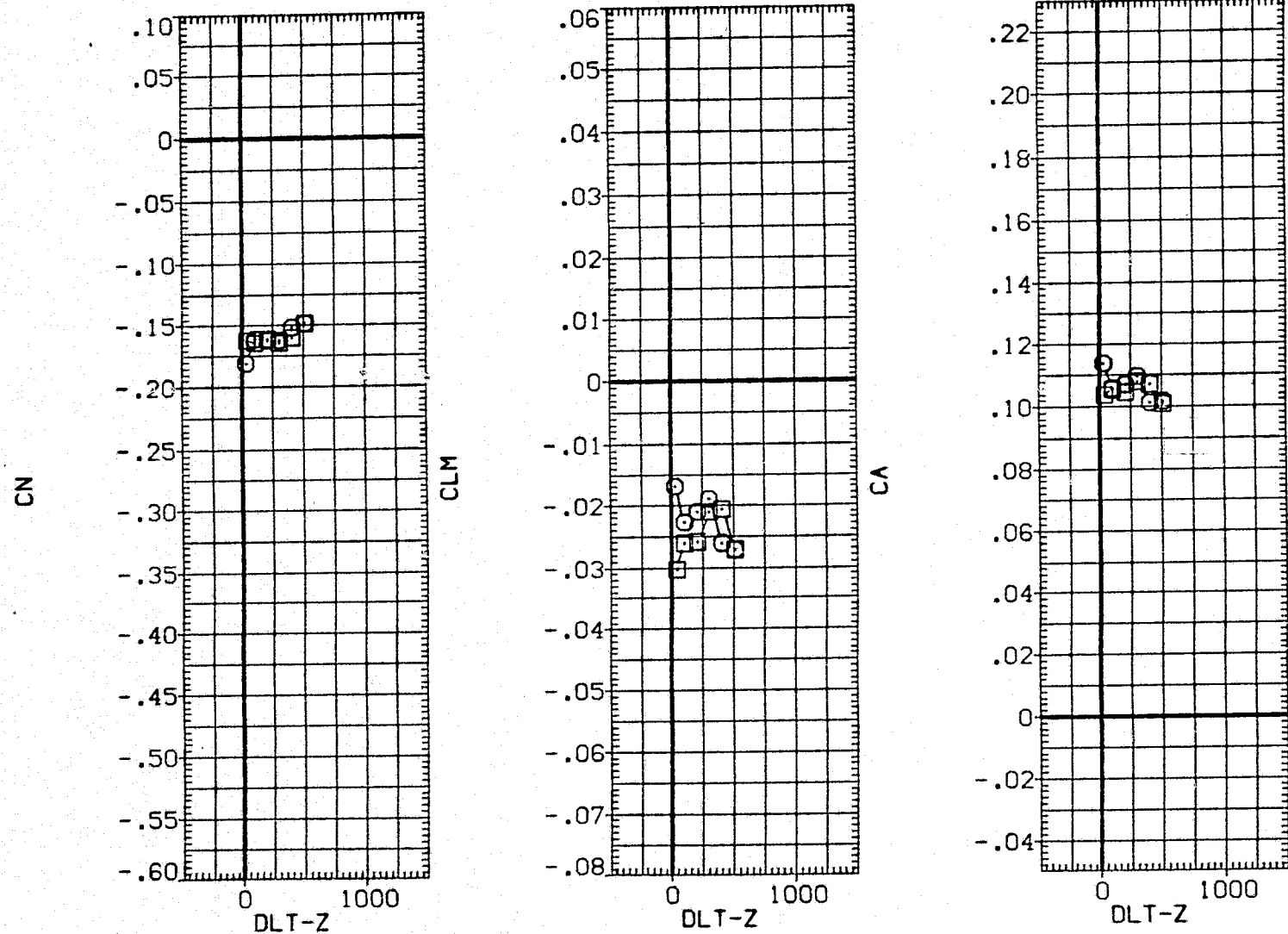


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR428)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.443	200.000	BETA	-10.000
□	200.550	.000	DLTALF	.000
		3.000	MACH	5.930
		.000	ELEVON	.000
		9.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
ZMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

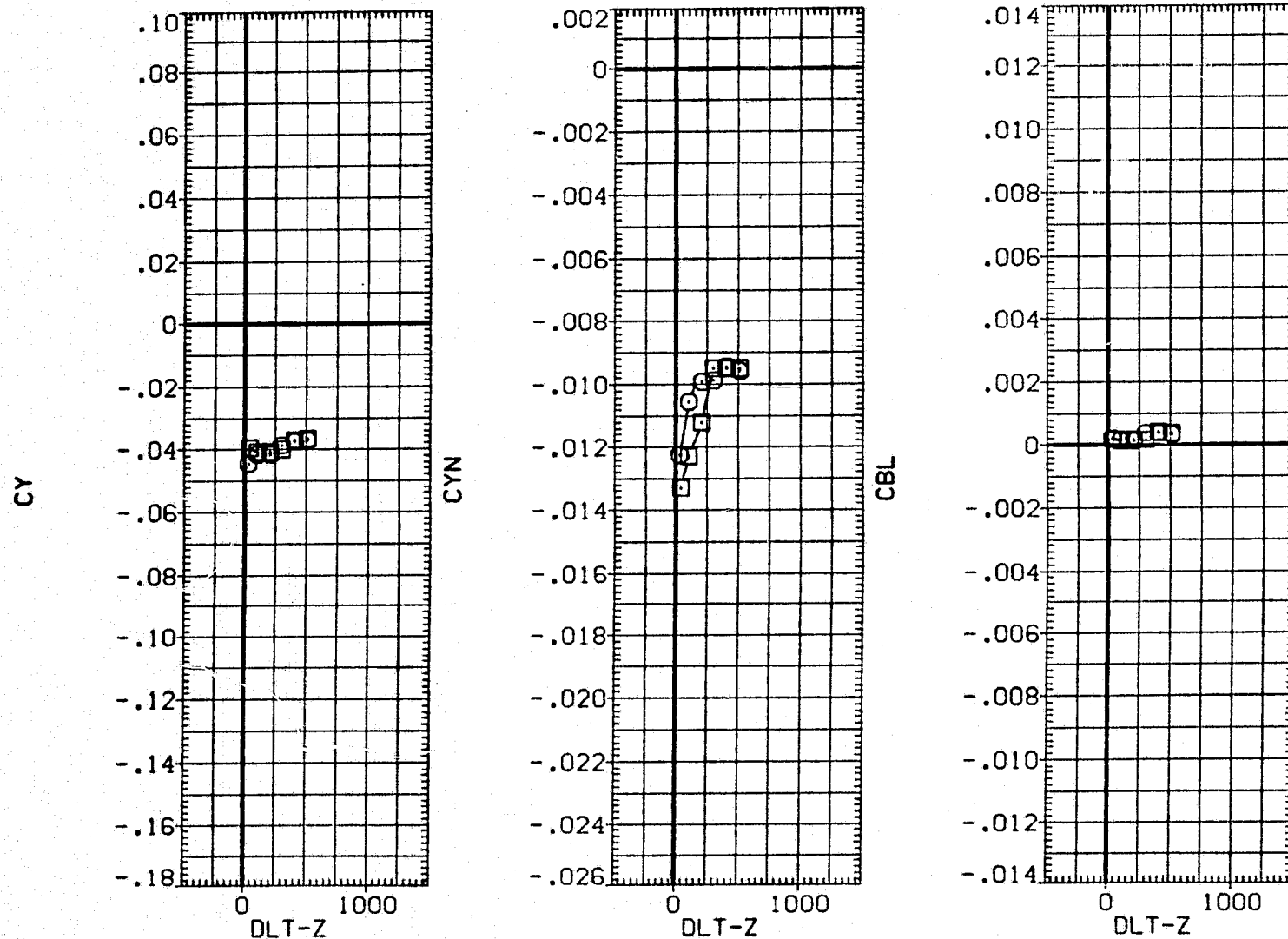


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR429)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	ELEVON
○	.306	200.000	-10.000	.000
□	200.430	.000	-10.000	.000
◇	400.430	3.000	MACH 5.930	.000
		AILRON		
		GRID		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	415.4000	IN. ZT
SCALE	.0100	

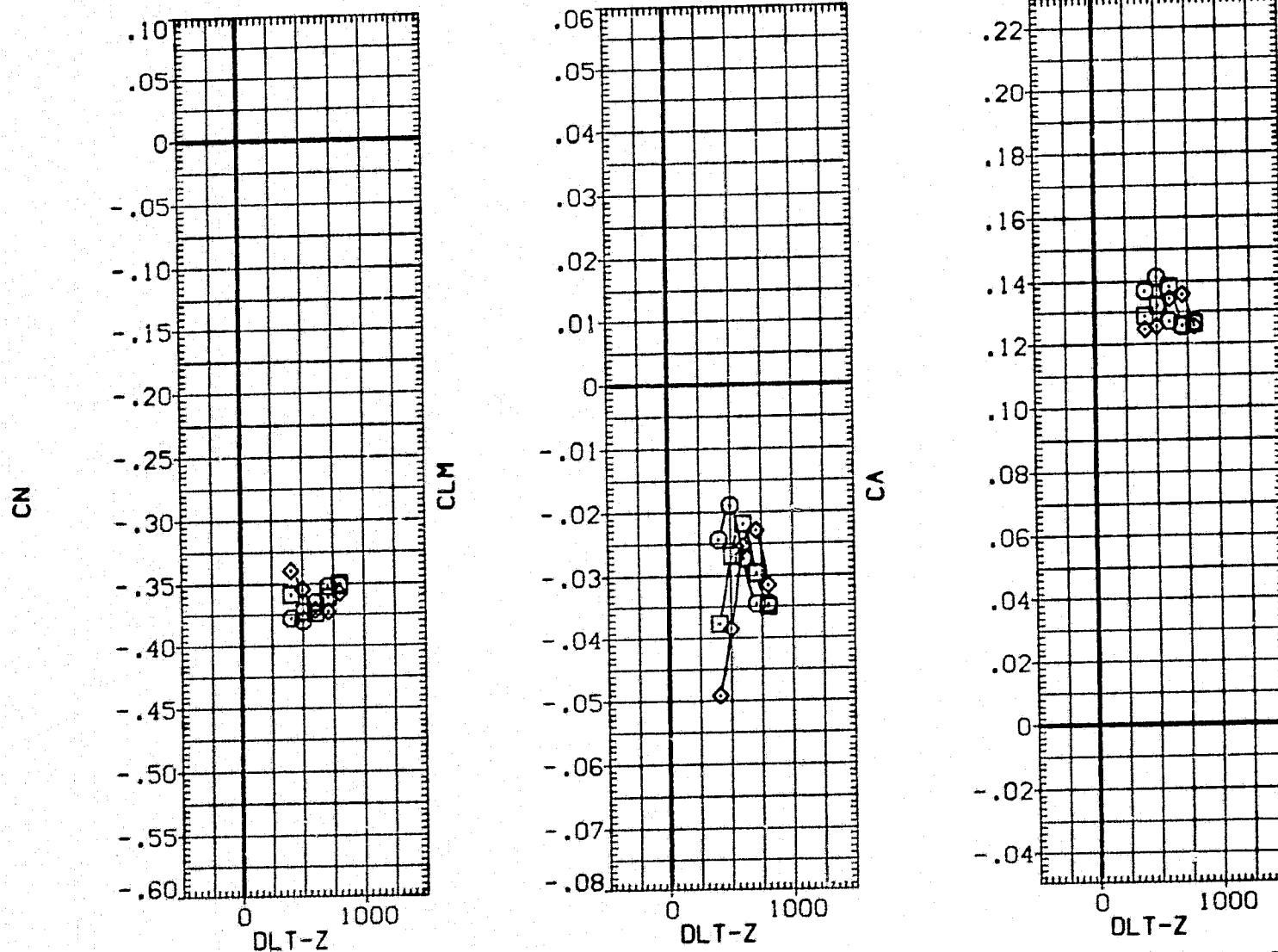


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR429)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
◇	.306	200.430	BETA	-10.000
□	400.430	200.430	DLTBTA	-10.000
			AILRON	5.930
			GRID	.000
				9.000

REFERENCE INFORMATION		
SREF	2650.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1260.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

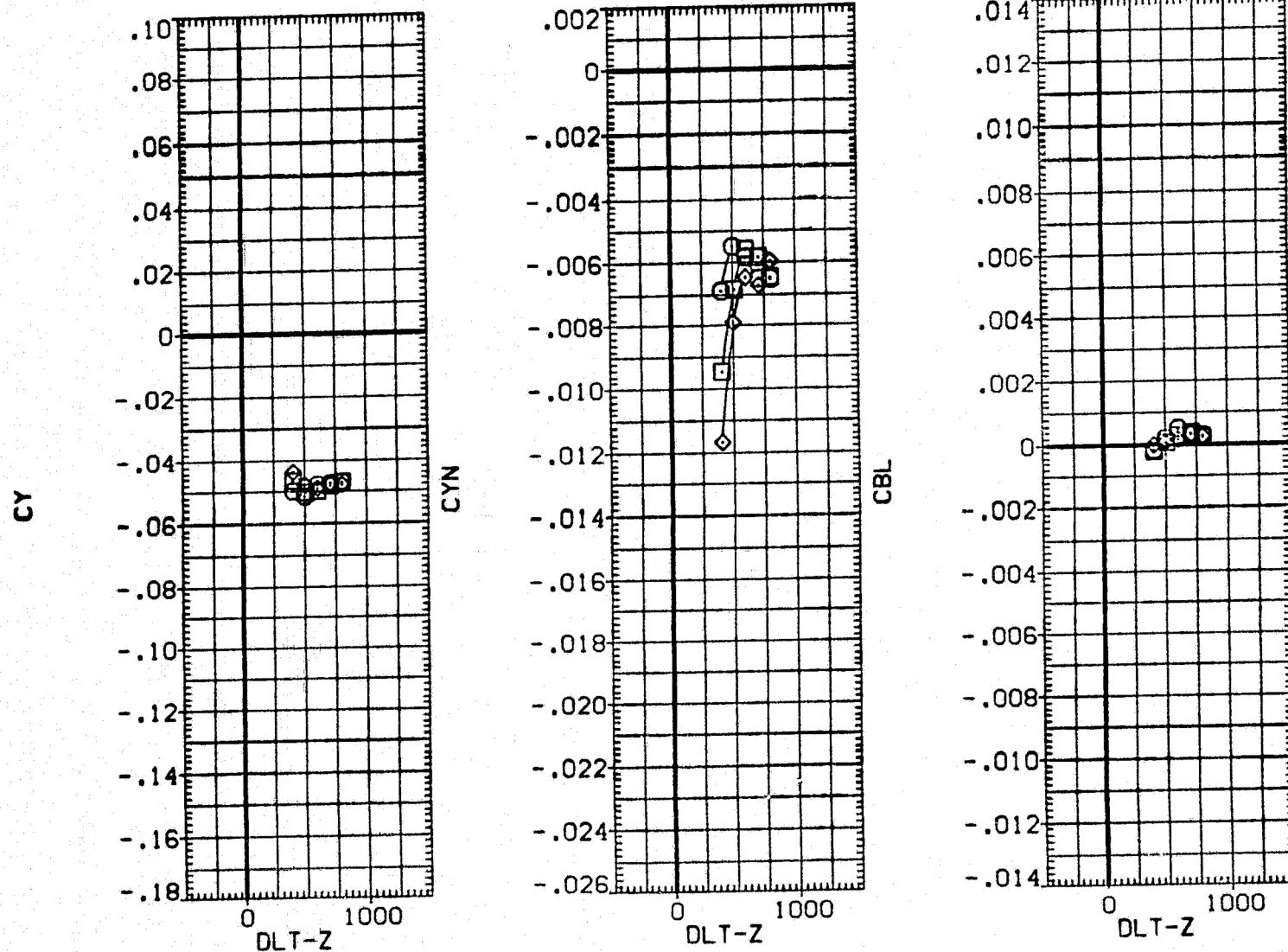


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR426)

SYMBOL		DLT-X	DLT-Y	PARAMETRIC VALUES		
○		.519	200.000	ALPHA	-10.000	
□		200.410	BETA	3.000	DLTALF	.000
			DLTBTA	3.000	MACH	5.930
			AILRON	.000	ELEVON	.000
			GRID	8.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

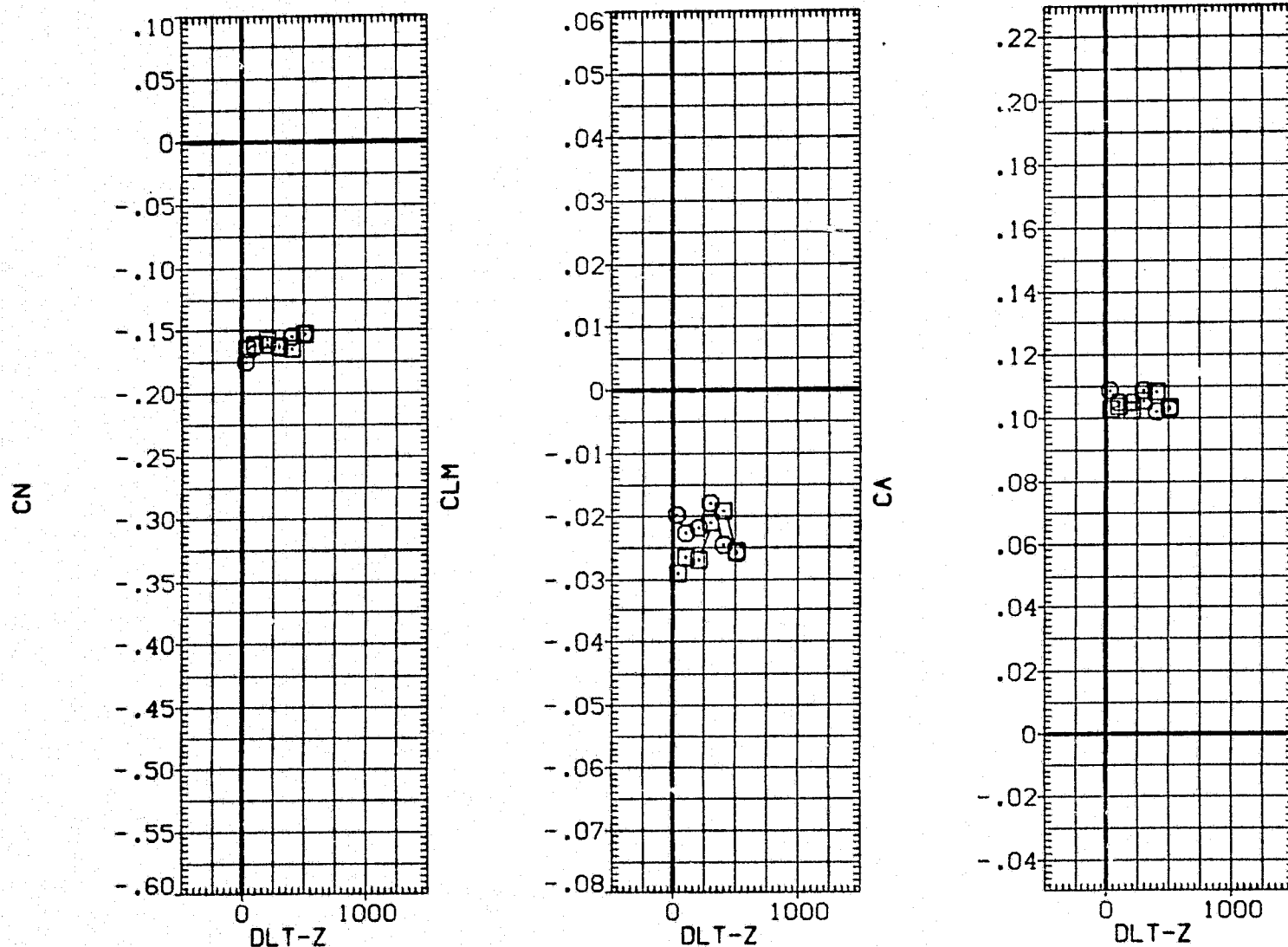


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200,MACH= 5.93,ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR426)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.519	BETA	200.000	ALPHA -10.000
□	200.410	DLT8TA	3.000	DLTALF .000
		AILRON	.000	MACH 5.930
		GRID	8.000	ELEVON .000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

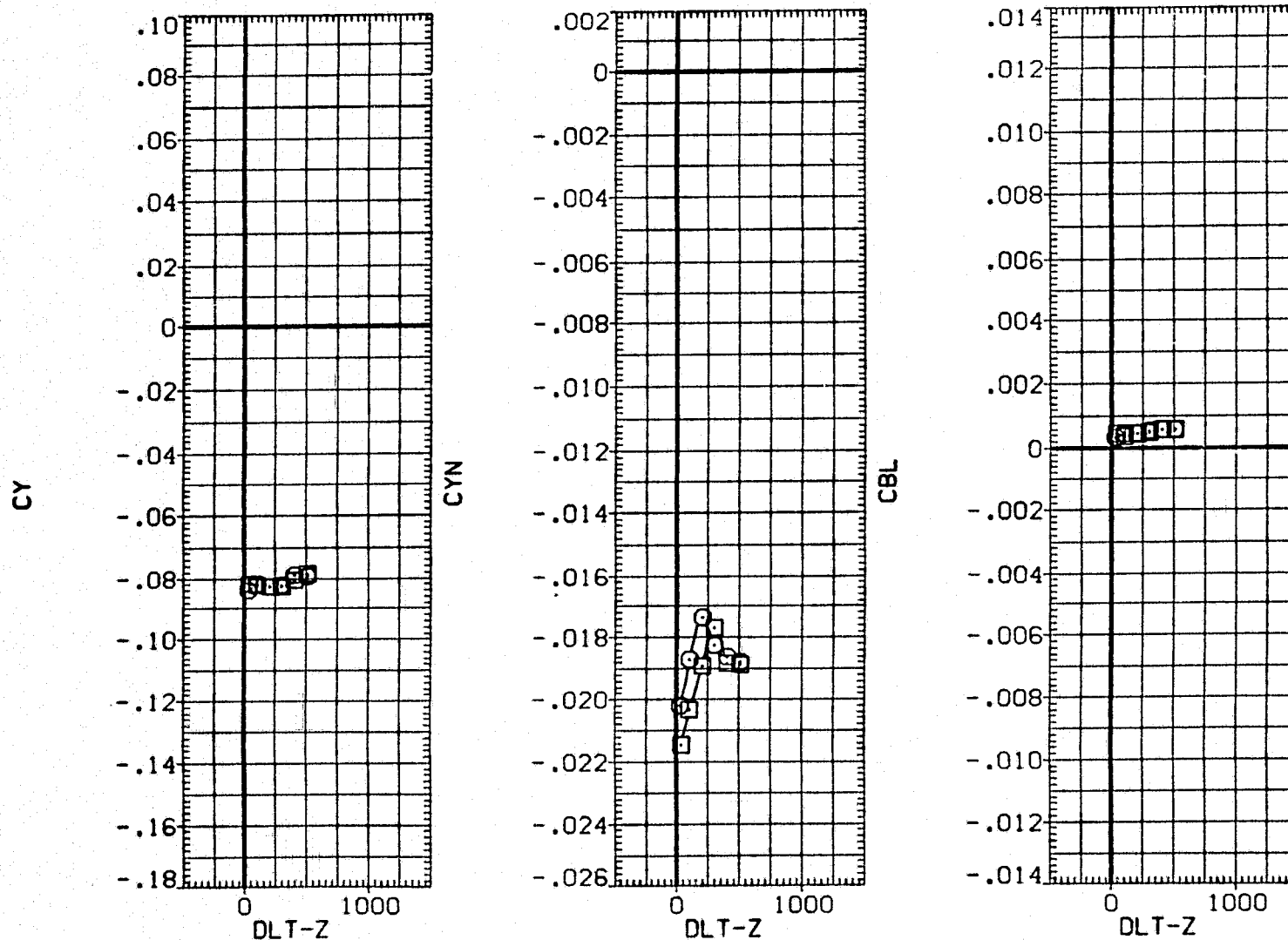


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR427)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-X	DLT-Y	ALPHA	DLTALF
◇	.363	200.430	-10.000	-10.000
□	200.430	BETA	3.000	MACH
○	400.440	DLTBTA	3.000	5.930
		AILRON	.000	ELEVON
		GRID	8.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

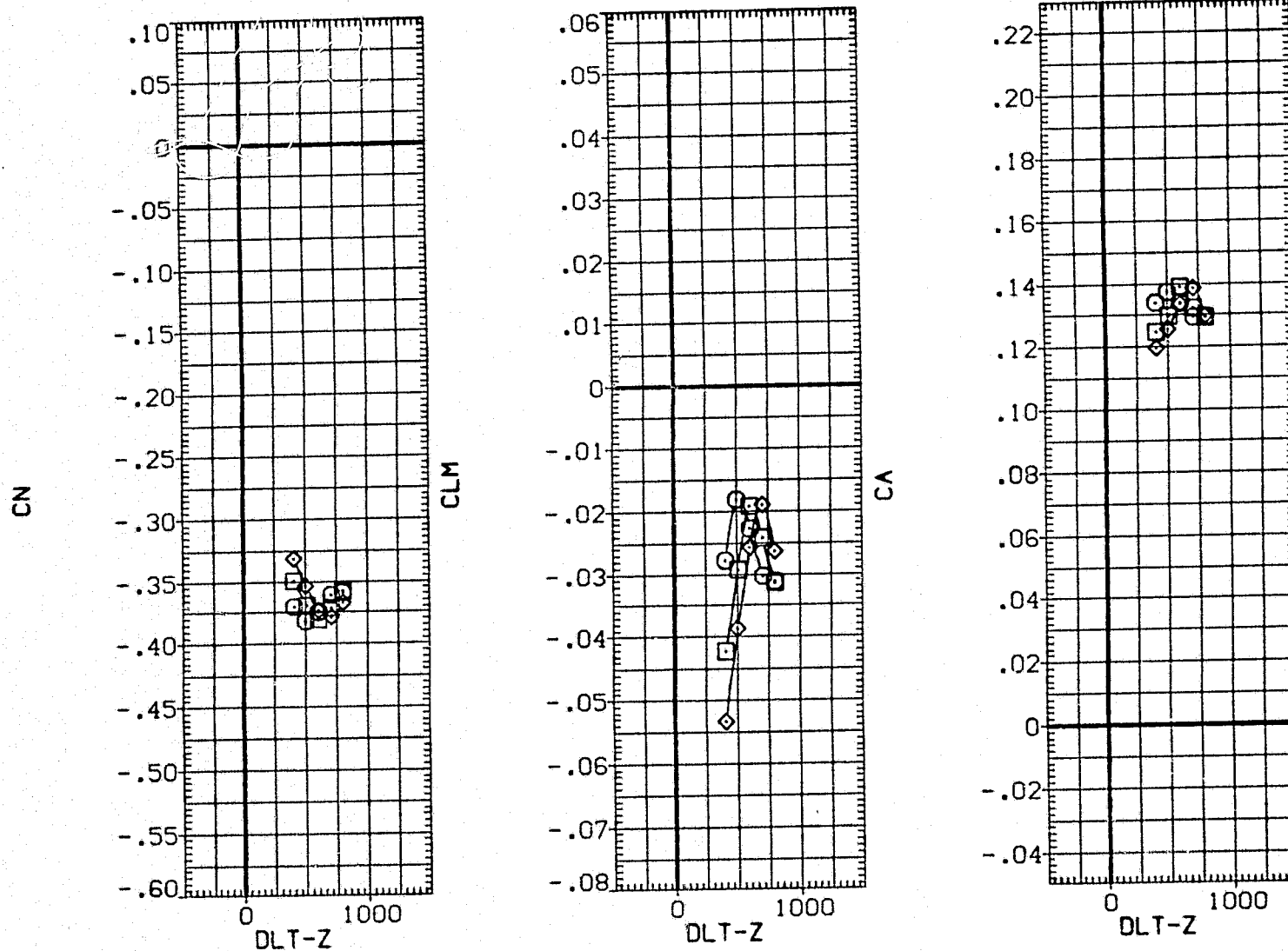


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR427)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA	ELEVON
○	.363	200.490	BETA	3.000	DLTALF
□	200.490	DLTBT	3.000	MACH	5.930
◇	400.440	AIRLON	.000	ELEVON	.000
		GRID	8.000		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

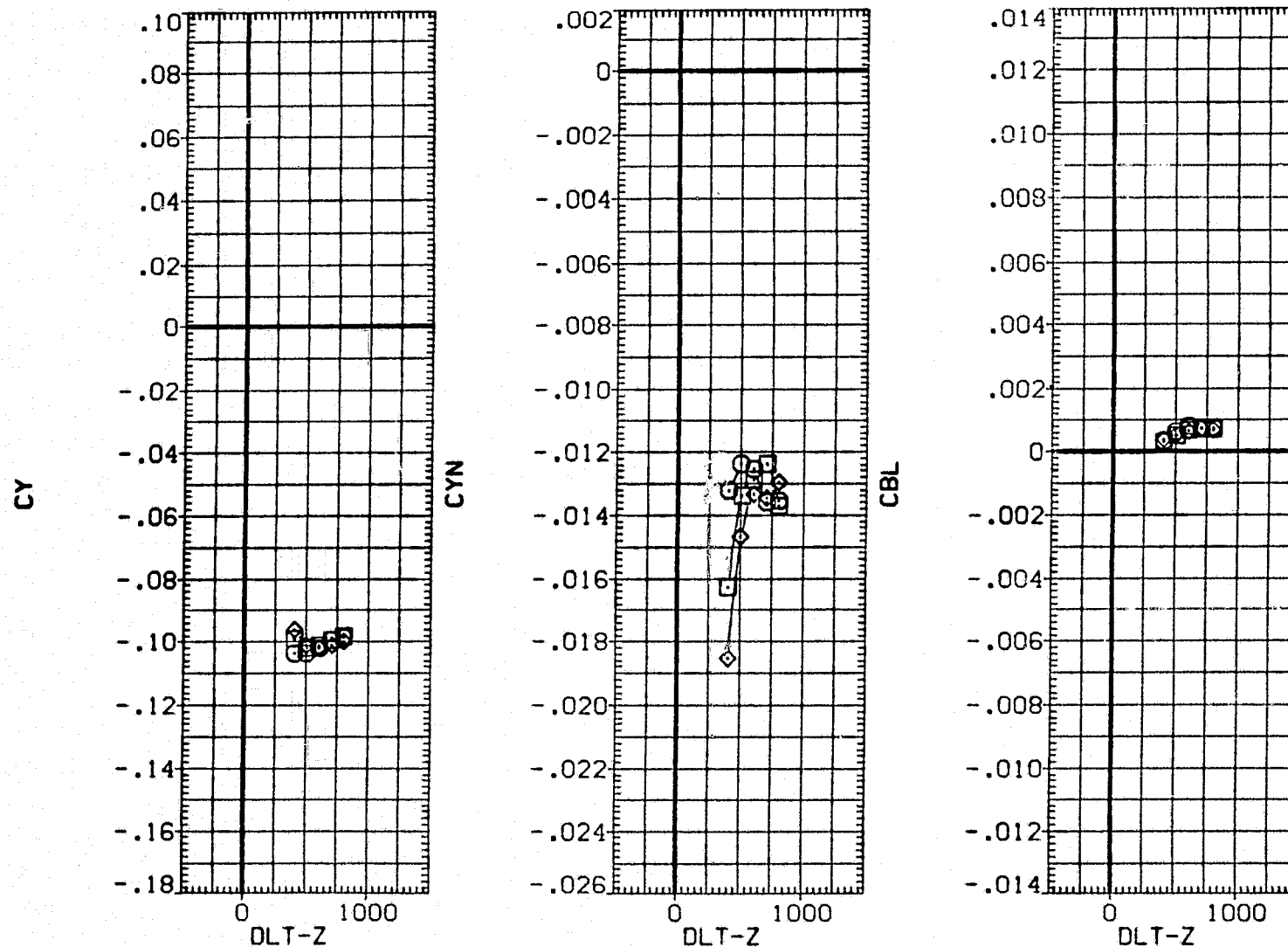


FIGURE 39 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=200, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR601)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.543	-60.000	ALPHA	.000
□	200.470	.000	DLTALF	.000
		-3.000	MACH	5.930
		.000	ELEVON	.000
		1.000		

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

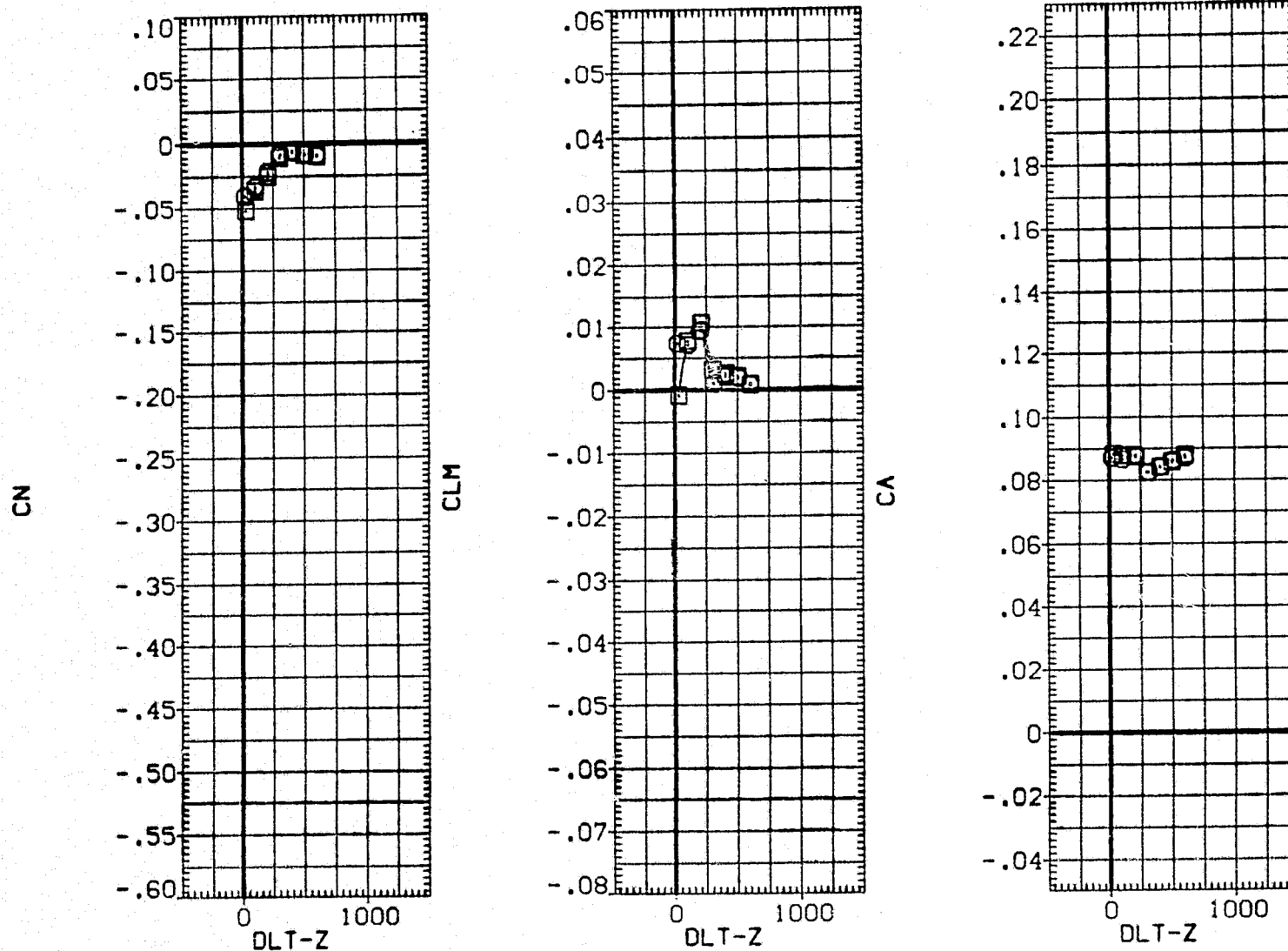


FIGURE 40 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=-60, MACH= 5.93, ELEVON= 0)

SYMBOL		DLT-X	PARAMETRIC VALUES			
○		.543	DLT-Y	-60.000	ALPHA	.000
□		200.470	BETA	.000	DLTALF	.000
			DLTBTA	-3.000	MACH	5.930
			AILRON	.000	ELEVON	.000
			GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1350.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

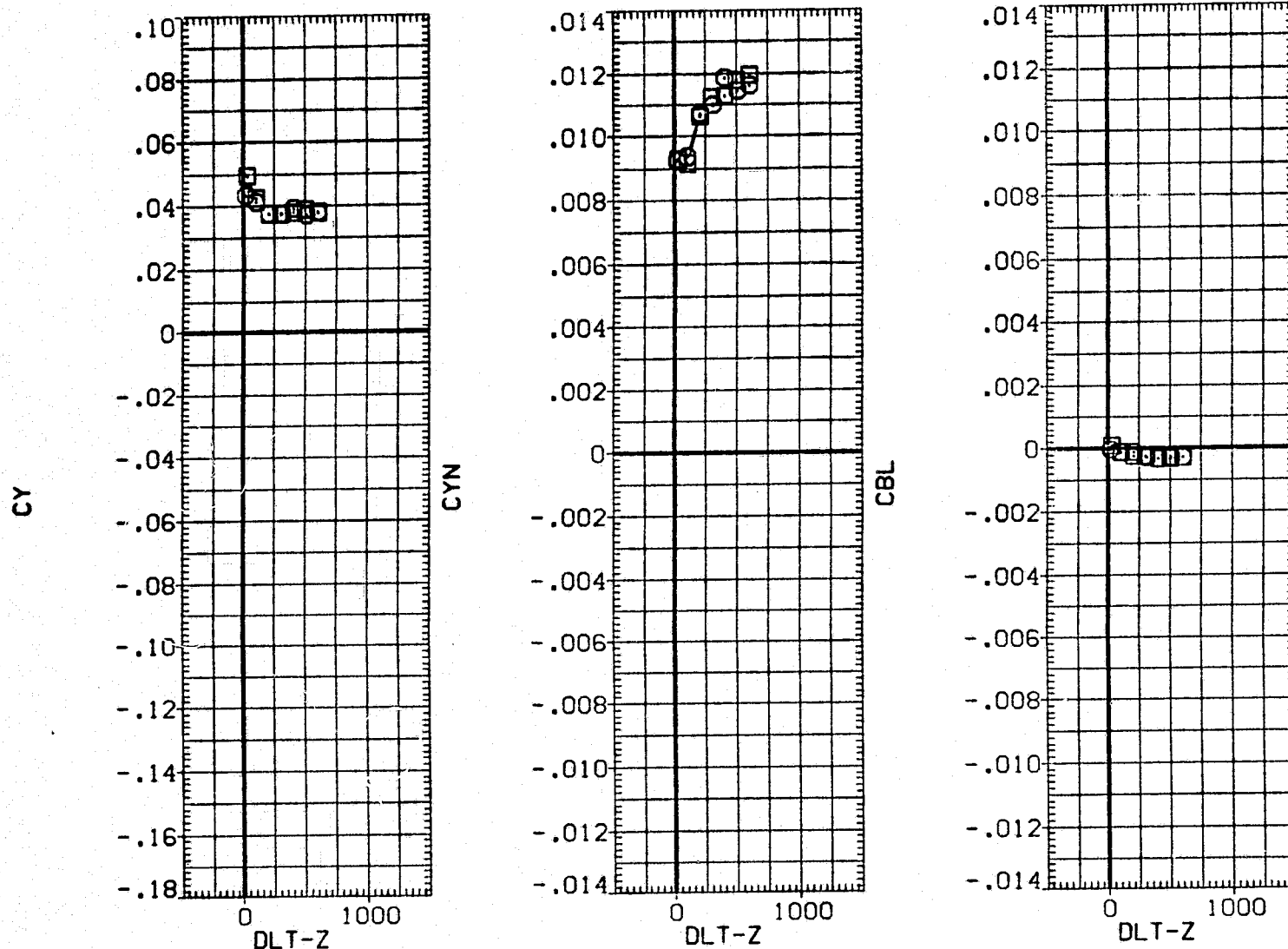


FIGURE 40 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=-60, MACH= 5.93, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR602)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	ALPHA
○	.488	-60.000	DLTALF	.000
□	200.440	.000	MACH	-10.000
		-3.000	ELEVON	5.930
		.000		.000
		1.000		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

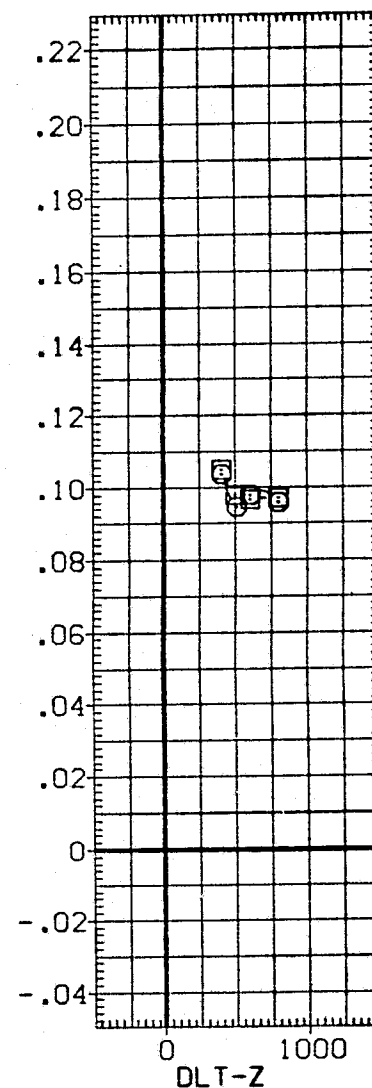
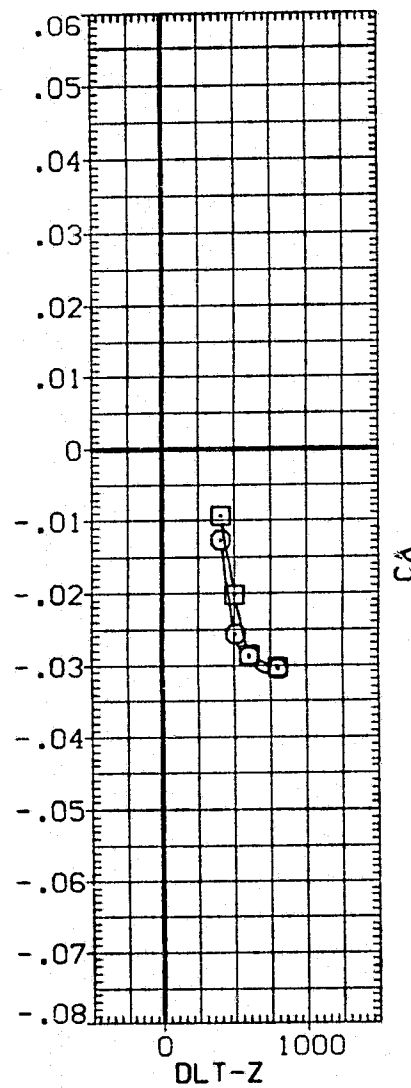
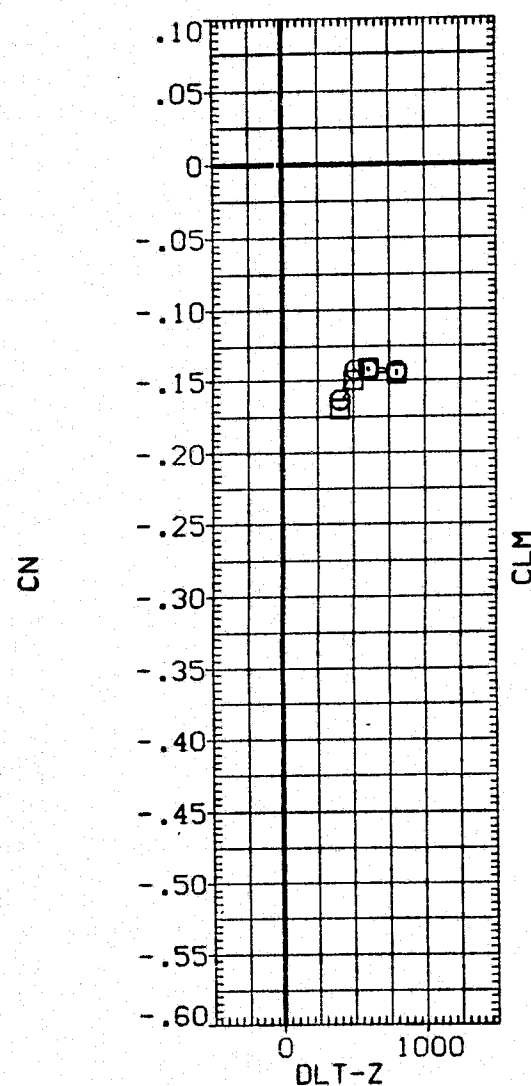


FIGURE 40 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=-60, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR602)

SYMBOL	DLT-X		PARAMETRIC VALUES	
	DLT-Y	DLT-Z	ALPHA	DLTALF
○	.488	-60.000	.000	-10.000
□	200.440	.000	MACH	5.930
	DLTBT	-3.000	ELEVON	.000
	AILRON	.000		
	GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. YT
SCALE	.0100	

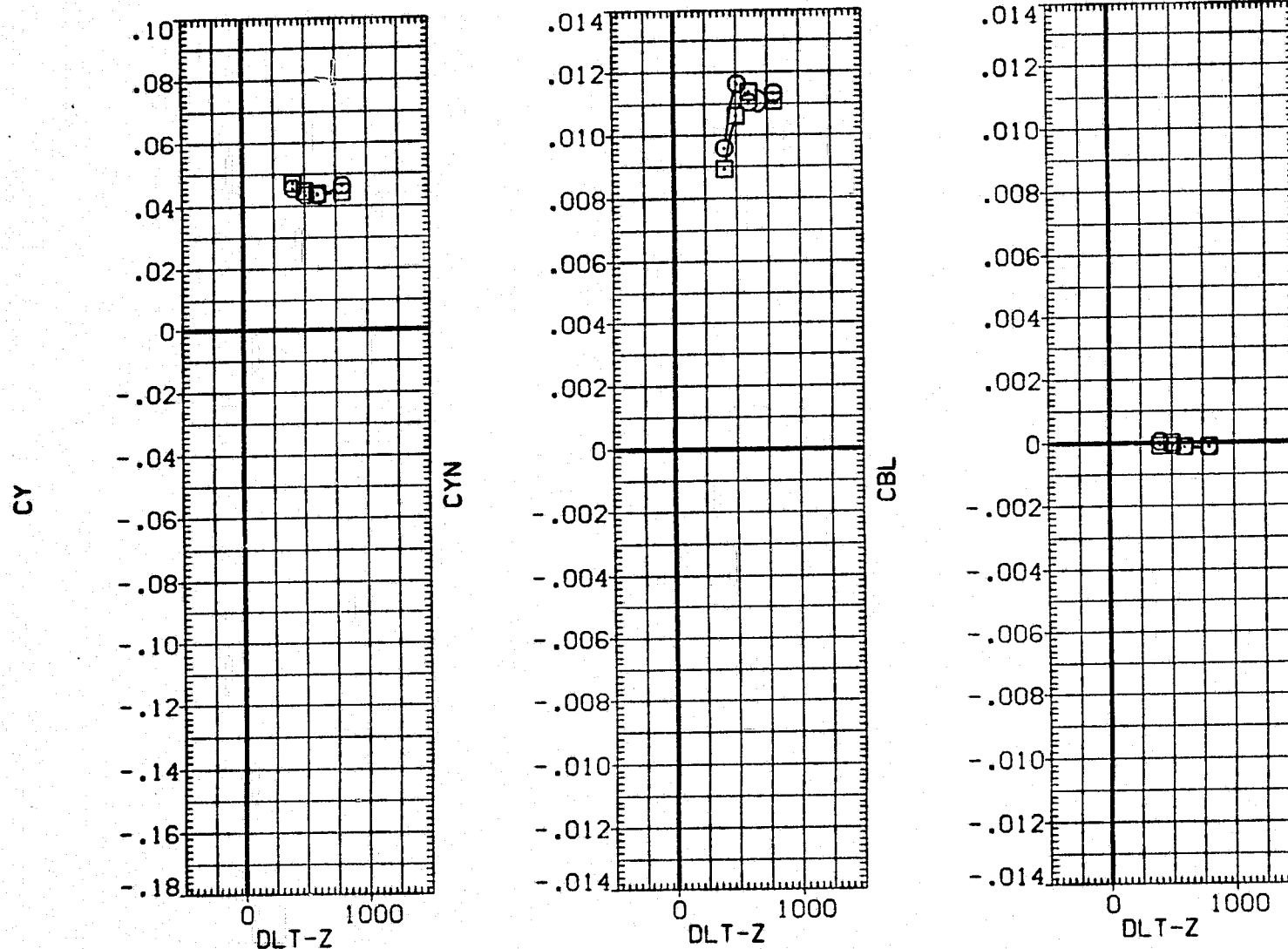


FIGURE 40 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=-60, MACH= 5.93, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR603)

SYMBOL	DLT-X	PARAMETRIC VALUES			
	DLT-Y	DLT-Z	ALPHA	DLTALF	ELEVON
○	.602	-60.000	.000	-20.000	.000
□	200.510	BETA	.000	MACH	5.930
		DLTBTA	-3.000	ELEVON	.000
		AILRON	.000		
		GRID	1.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

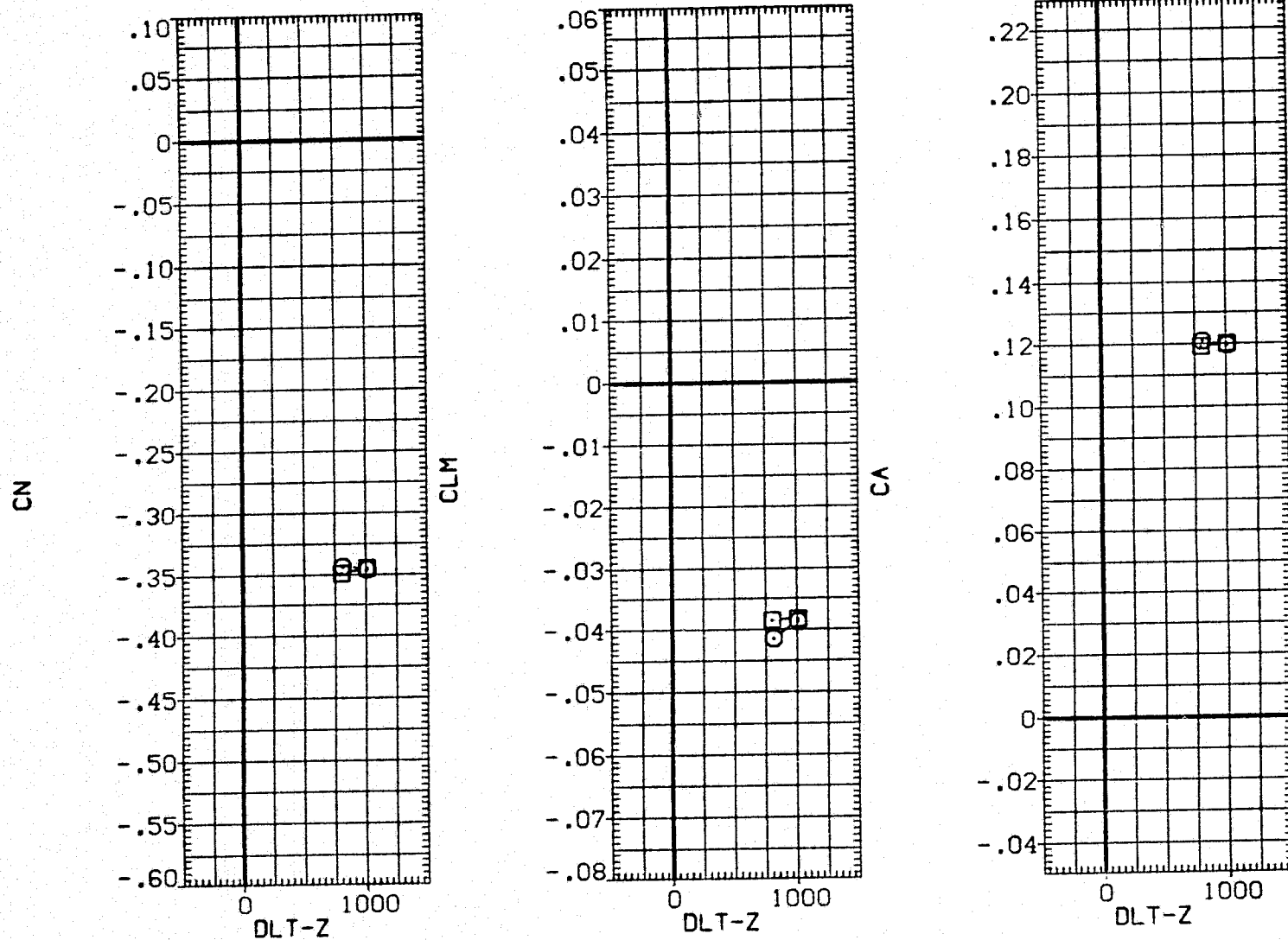


FIGURE 40 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=-60, MACH= 5.93, ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR603)

SYMBOL	DLT-X	DLT-Y	PARAMETRIC VALUES	
○	.602	-60.000	ALPHA	.000
□	200.510	.000	DLTALF	-20.000
		-3.000	MACH	5.930
		.000	ELEVON	.000
		1.000		

REFERENCE INFORMATION	
SREF	2690.0000 SO.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

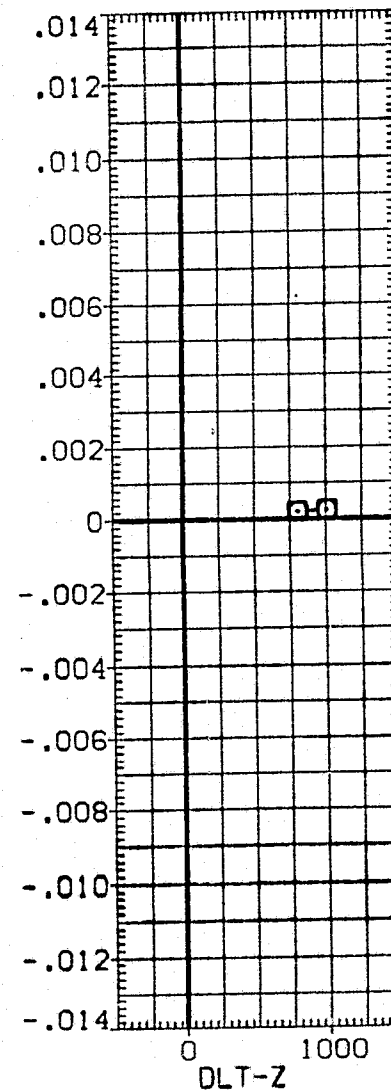
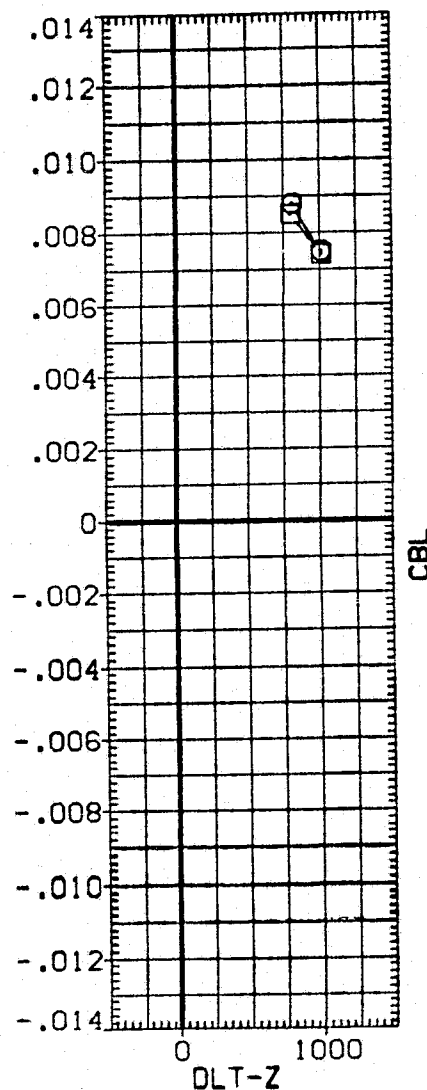
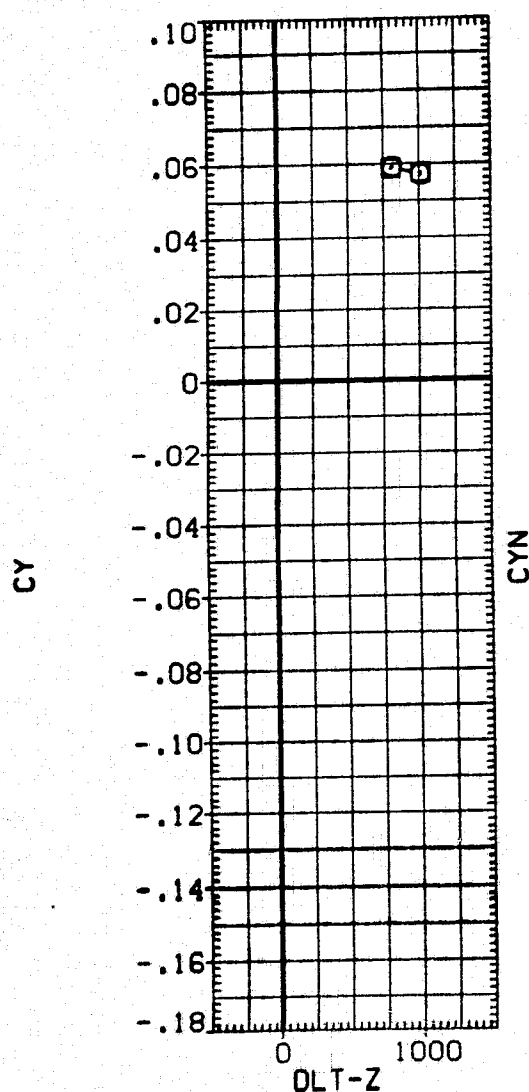


FIGURE 40 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-Y=-60, MACH= 5.93, ELEVON= 0)



AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR701)

SYMBOL	DLT-Z	DLT-X	PARAMETRIC VALUES	
○	20.015		.000	ALPHA
□	199.650	BETA	.000	DLTALF
◇	397.750	DLTBTA	3.000	MACH
		AILRON	.000	ELEVON
		GRID	2.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

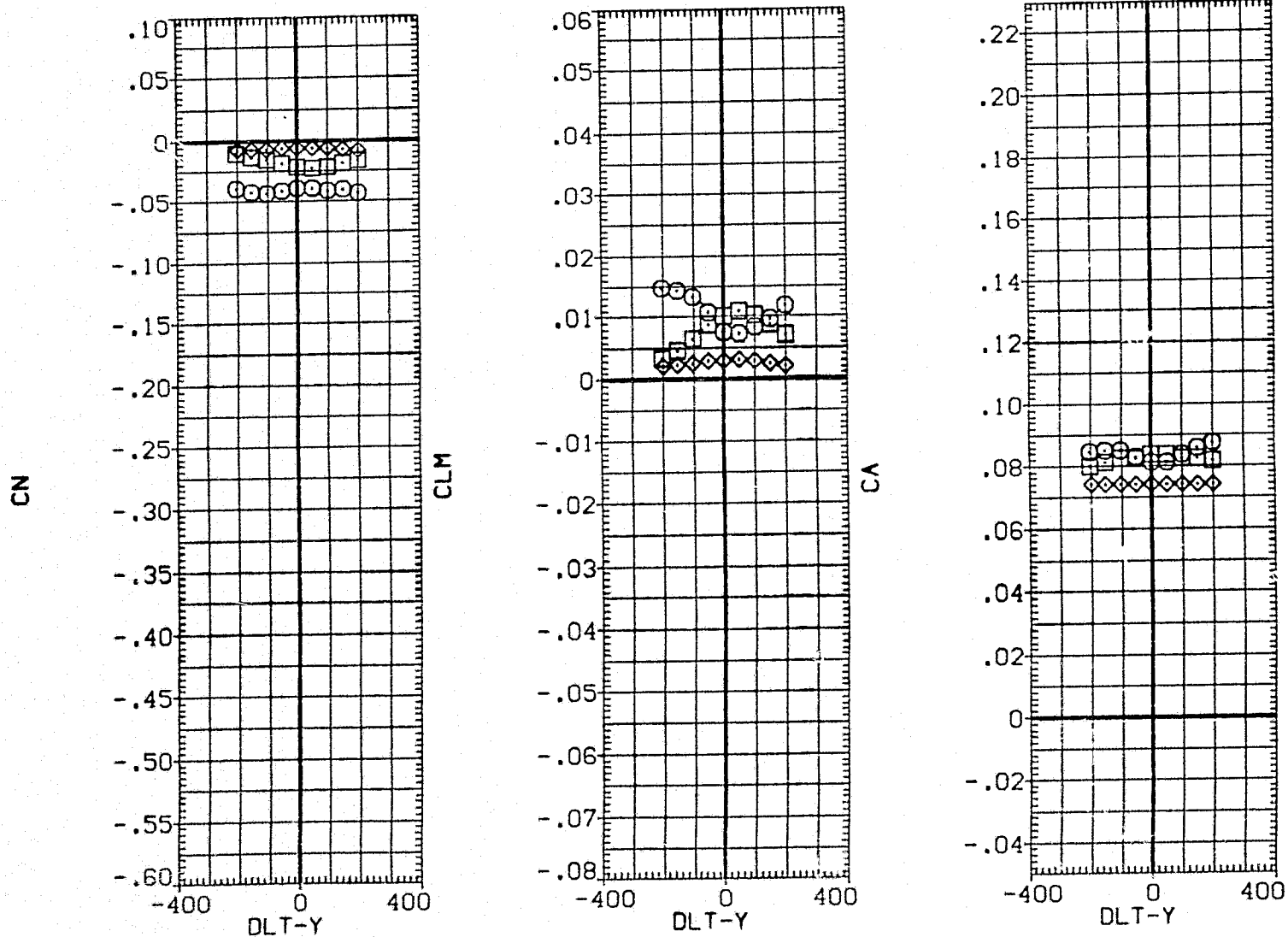


FIGURE 41 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-X= 0, MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR701)

SYMBOL	DLT-Z	DLT-X	PARAMETRIC VALUES	ALPHA	
○	20.015	BETA	.000	.000	
□	199.650	DLTBTA	.000	.000	
◇	397.750	AILRON	3.000	5.930	
		GRID	.000	ELEVON	.000
			2.000		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

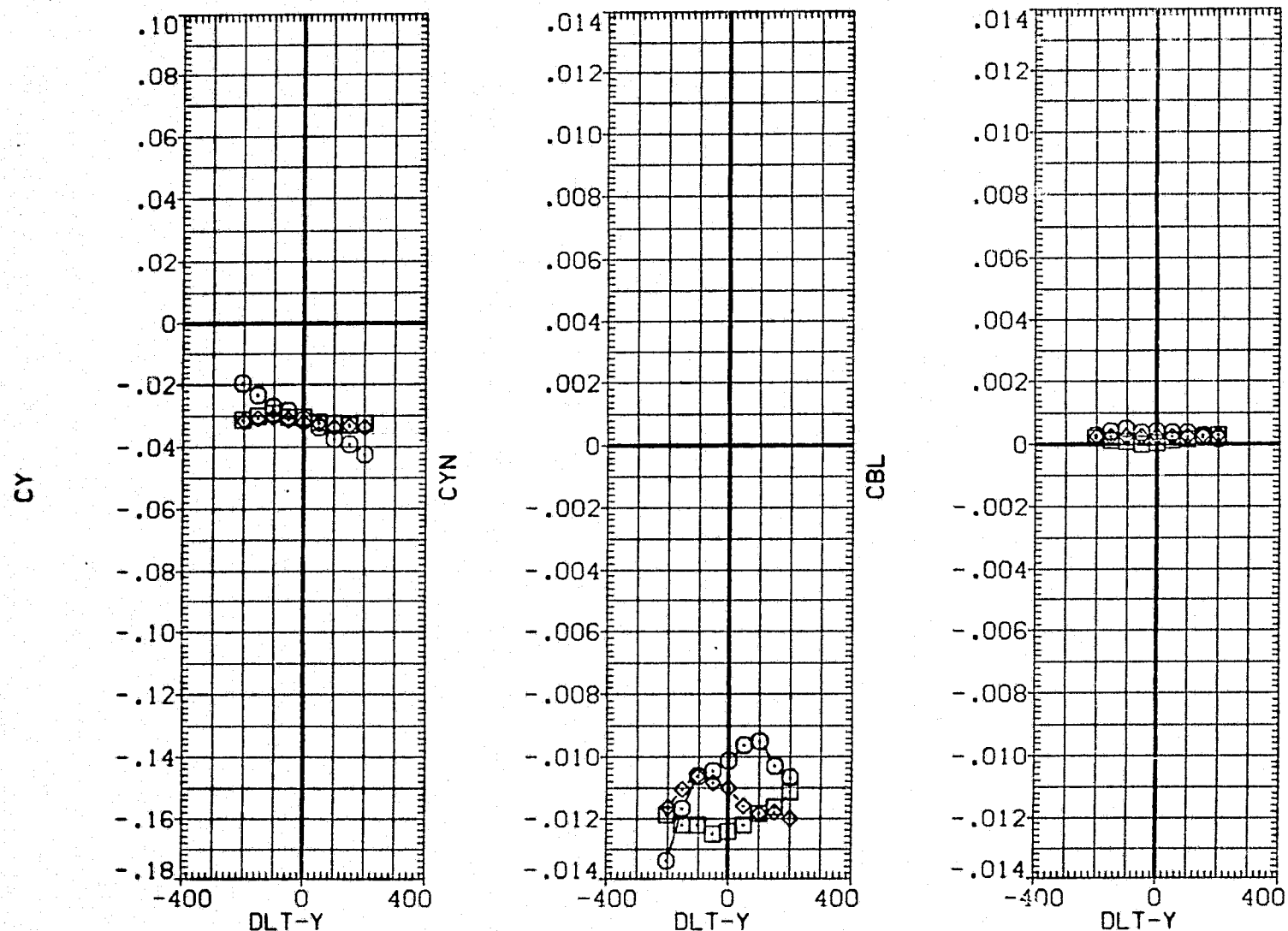


FIGURE 41 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-X= 0, MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR702)

SYMBOL	DLT-Z	DLT-X	PARAMETRIC VALUES	
○	20.571	BETA	.000	ALPHA .000
□	200.150	DLTBT	.000	DLTALF .000
◇	400.040	AILRON	.000	MACH 5.930
		GRID	2.000	ELEVON .000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

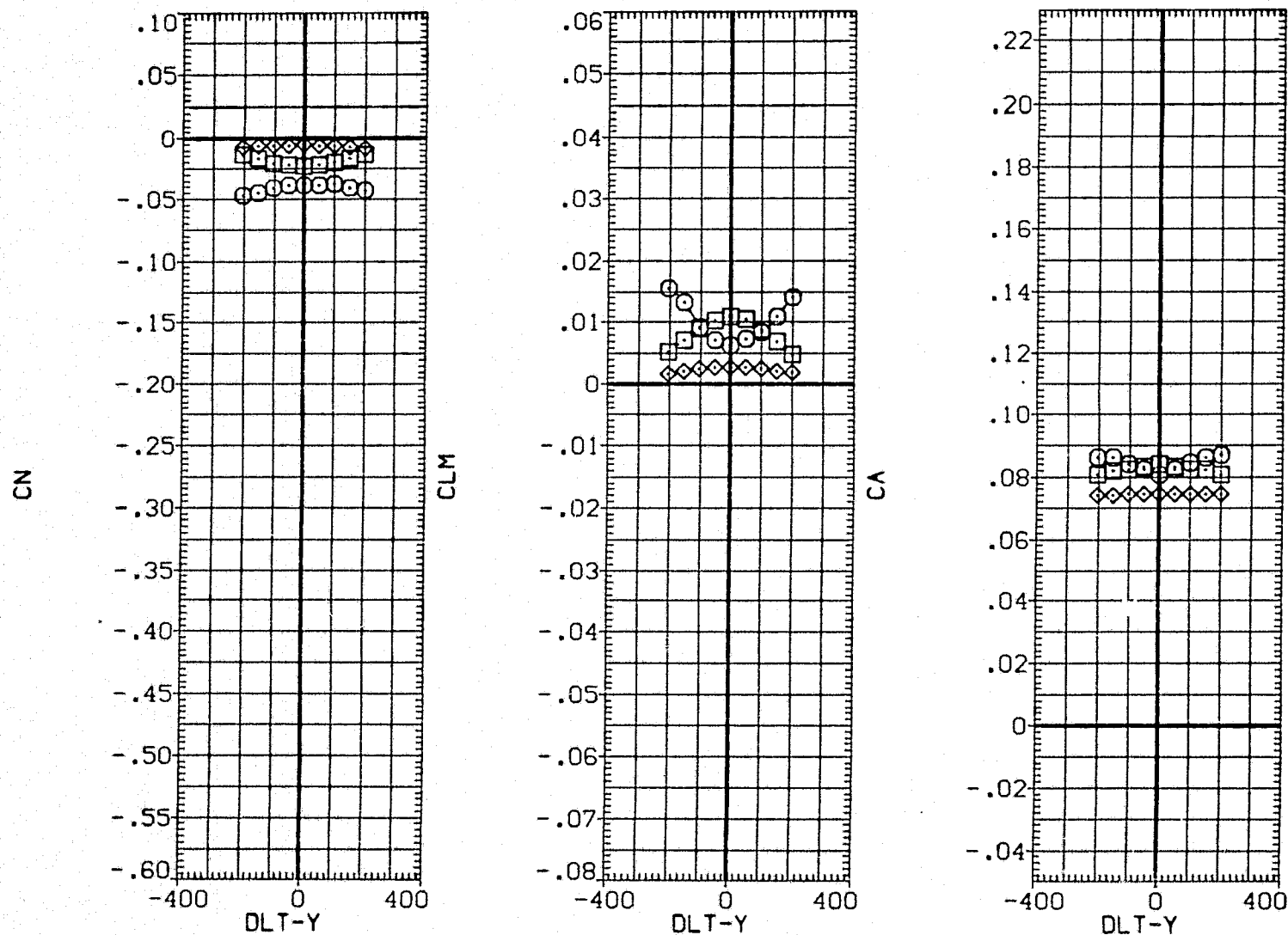


FIGURE 41 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-X= 0, MACH= 5.93, ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR702)

SYMBOL	DLT-Z	DLT-X	PARAMETRIC VALUES	
○	20.571	.000	ALPHA	.000
□	200.150	.000	DLTALF	.000
◇	400.040	.000	MACH	5.930
		.000	ELEVON	.000
		2.000	GRID	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1230.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

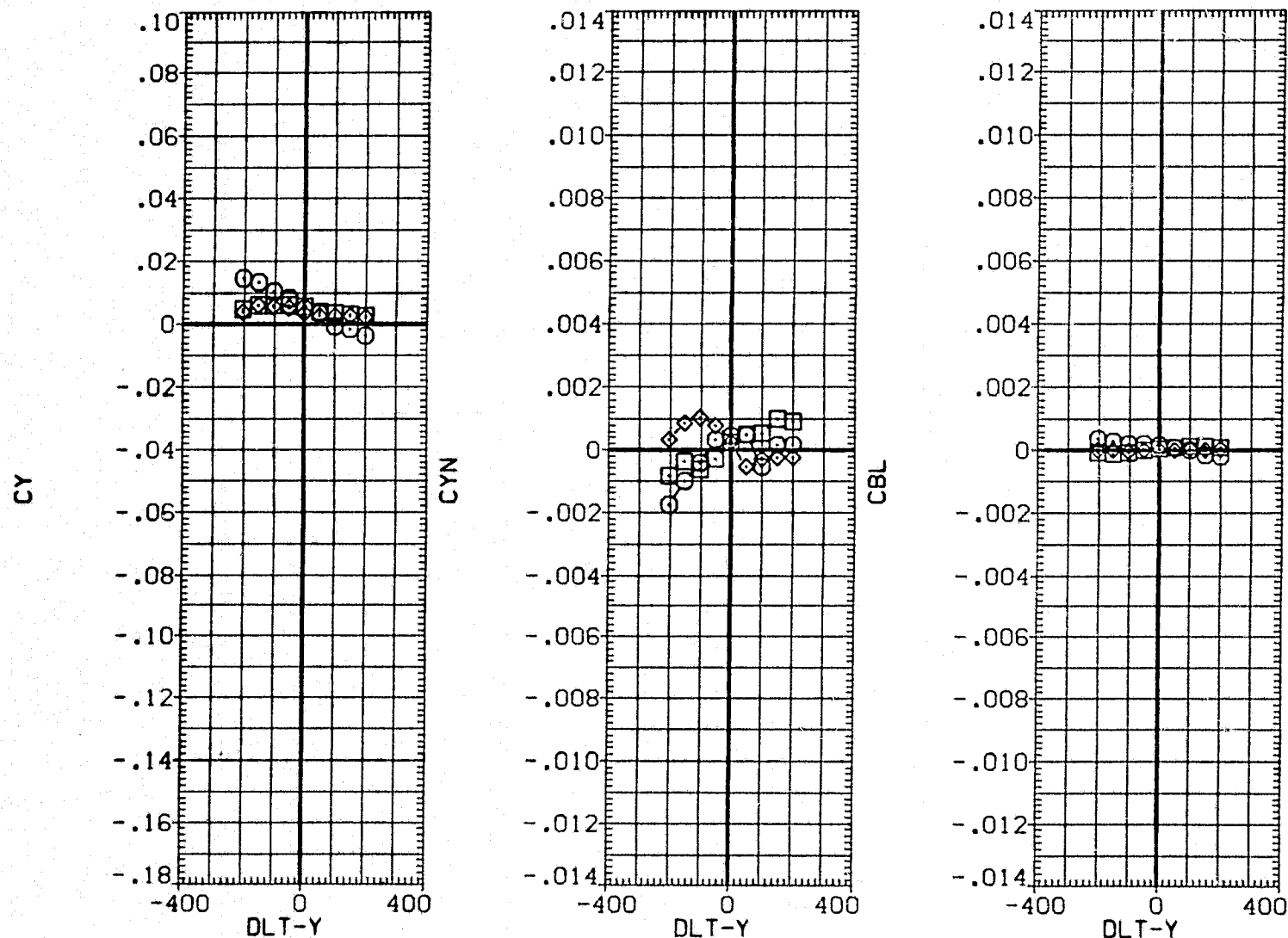


FIGURE 41 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-X= 0, MACH= 5.93, ELEVON= 0)



AEDC VA422(IA17) ORB AND ET SEPARATING(ET DATA) (ATR703)

SYMBOL	DLT-Z	DLT-X	PARAMETRIC VALUES	
○	20.091	BETA	.000	ALPHA
□	199.880	DLTBT	.000	DLTALF
◇	400.200	AILRON	-3.000	MACH
		GRID	.000	ELEVON
			2.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

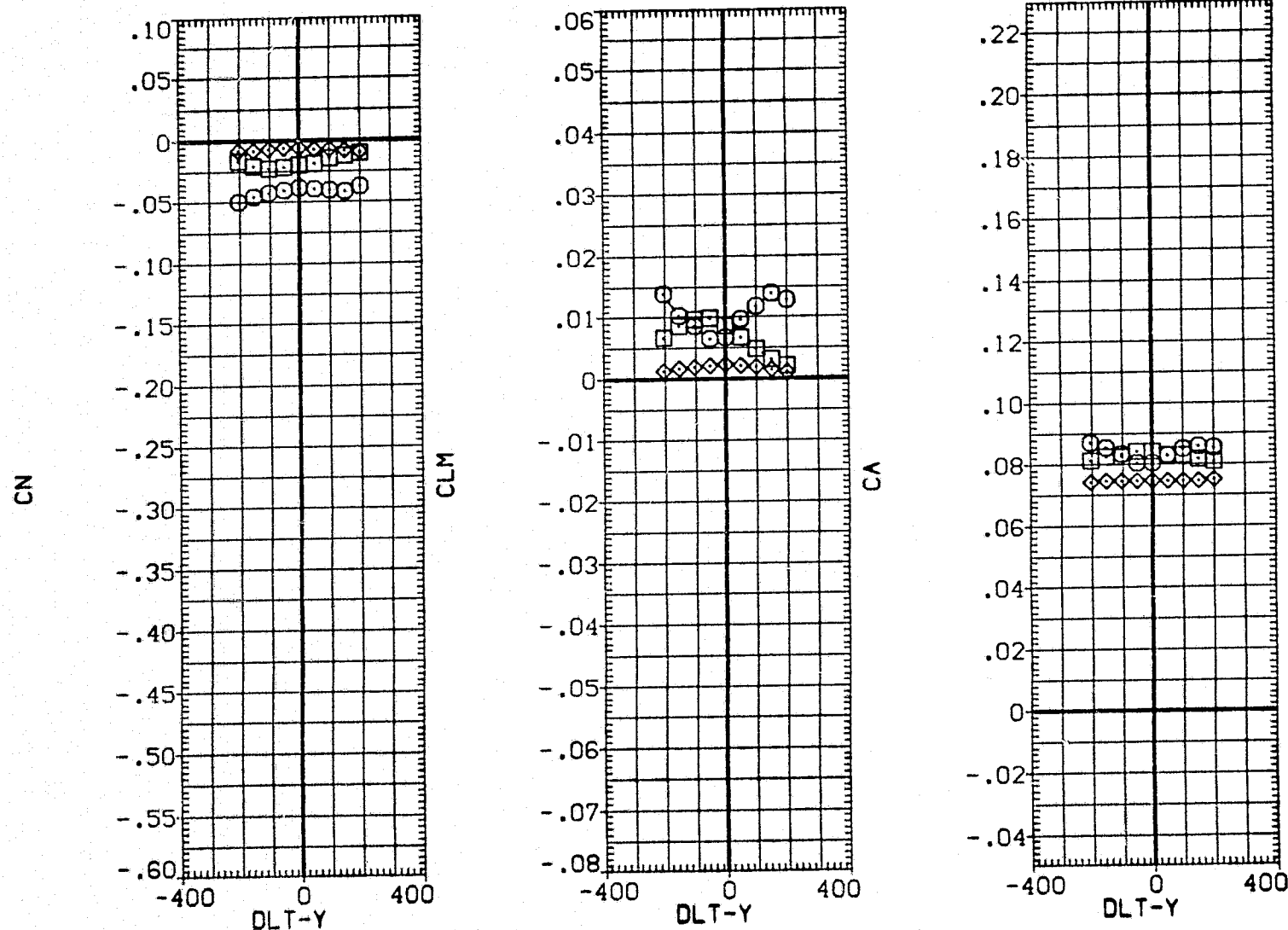


FIGURE 41 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-X= 0, MACH= 5.93,ELEVON= 0)

AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA) (ATR703)

SYMBOL	DLT-Z	DLT-X	PARAMETRIC VALUES	
○	20.091	BETA	.000	ALPHA
□	199.890	DLTBT	.000	DLTALF
◇	400.200	AILRON	-3.000	MACH
		GRID	.000	ELEVON
			2.000	

REFERENCE INFORMATION		
SREF	2630.0000	SG.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

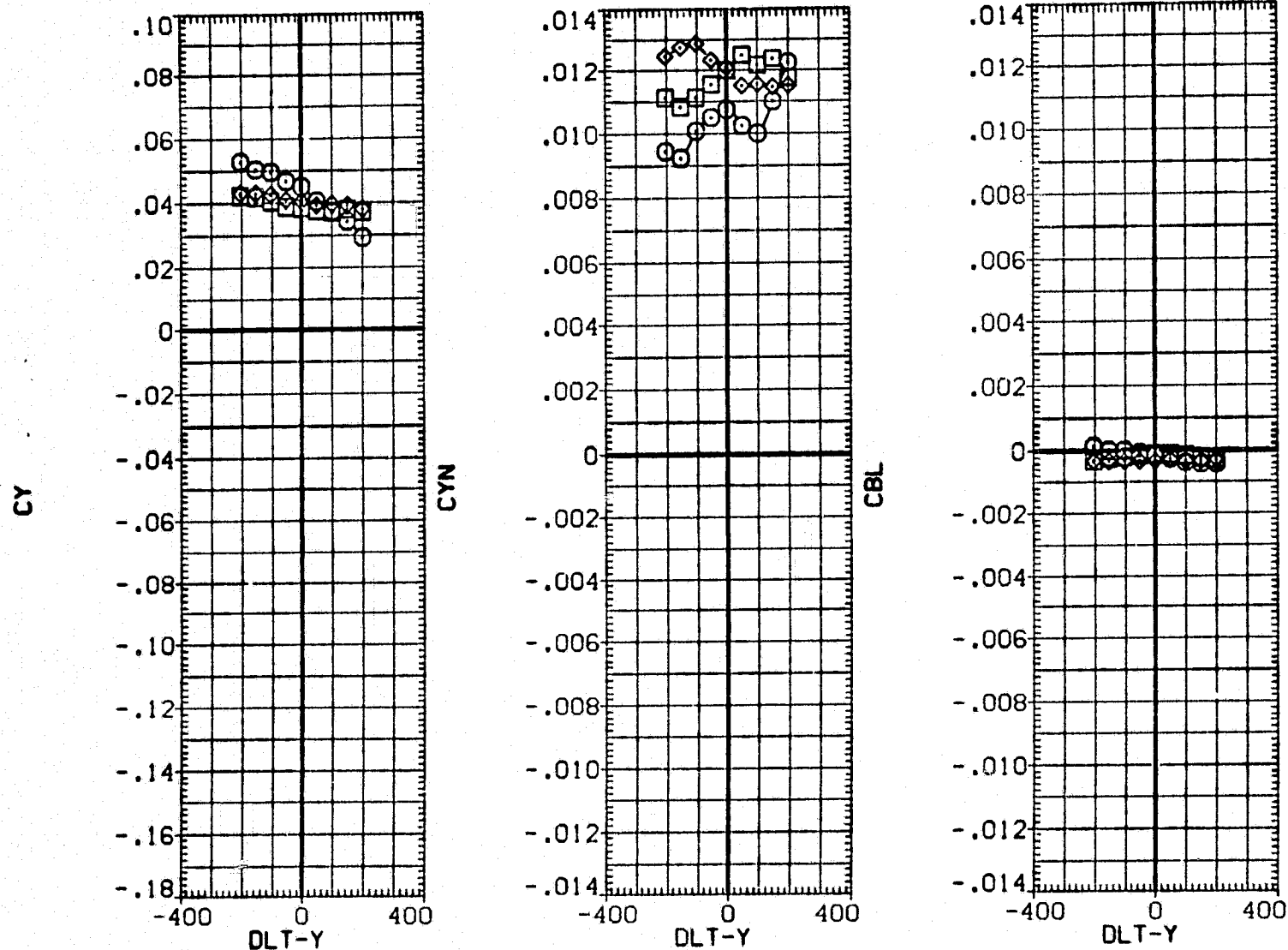


FIGURE 41 EXTERNAL TANK AERO CHARACTERISTICS (DELTA-X= 0, MACH= 5.93,ELEVON= 0)

AEDC VA422(IA17) ISOLATED EXTERNAL TANK

(BTR555)

SYMBOL ○ □ ◇	BETA	MACH	PARAMETRIC VALUES		
	.000		5.930	GRID	15.000
	3.000				
	6.000				

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	1290.3000 IN.
BREF	1290.3000 IN.
XMRP	1360.1000 IN. XT
YMRP	.0000 IN. YT
ZMRP	416.4000 IN. ZT
SCALE	.0100

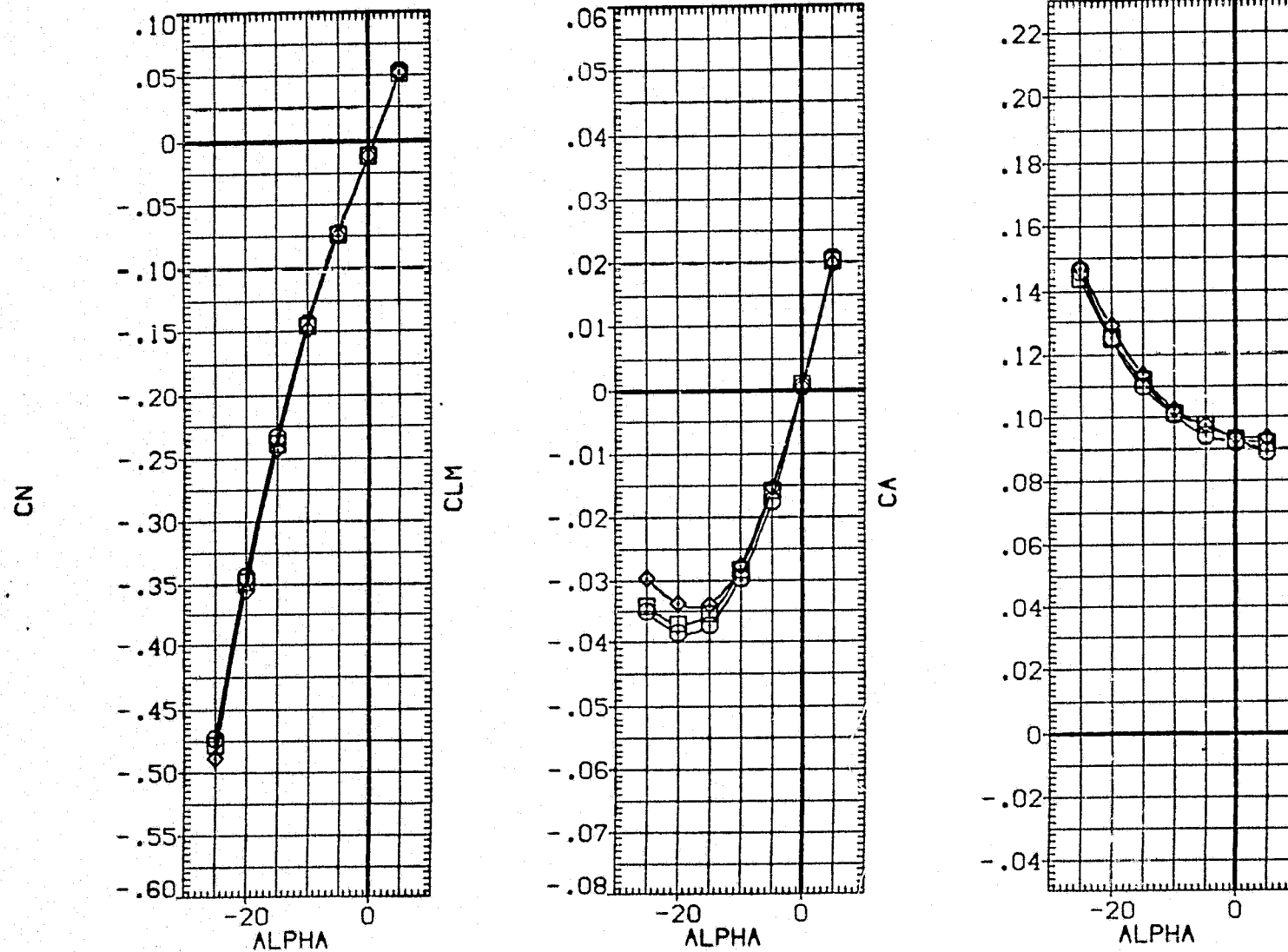


FIGURE 42 EXTERNAL TANK ALONE AERO CHARACTERISTICS AT MACH = 5.93

AEDC VA422(1A17) ISOLATED EXTERNAL TANK

(BTR555)

SYMBOL BETA MACH PARAMETRIC VALUES
 ○ 1.000
 □ 3.000
 ◇ 6.000

5.930 GRID 15.000

REFERENCE INFORMATION
 SREF 2690.0000 SQ.FT.
 LREF 1290.3000 IN.
 BREF 1290.3000 IN.
 XMRP 1360.1000 IN. XT
 YMRP .0000 IN. YT
 ZMRP 416.4000 IN. ZT
 SCALE .0100

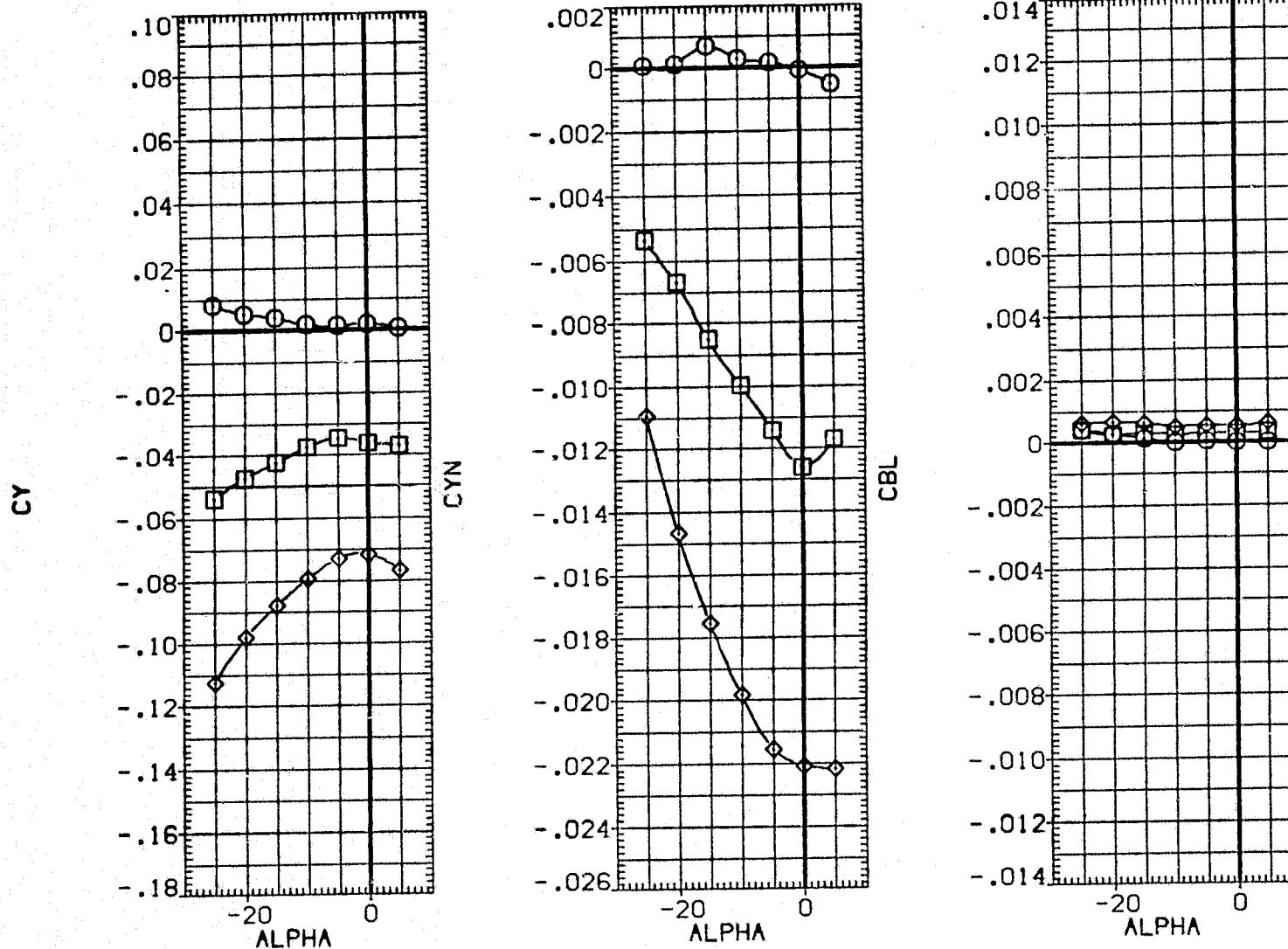


FIGURE 42 EXTERNAL TANK ALONE AERO CHARACTERISTICS AT MACH = 5.93

AEDC VA422(IA17) ISOLATED EXTERNAL TANK

(BTR557)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	GRID	15.000
○	.000				
□	3.000				
◇	6.000				

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
YMRP	1360.1000	IN. YT
ZMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

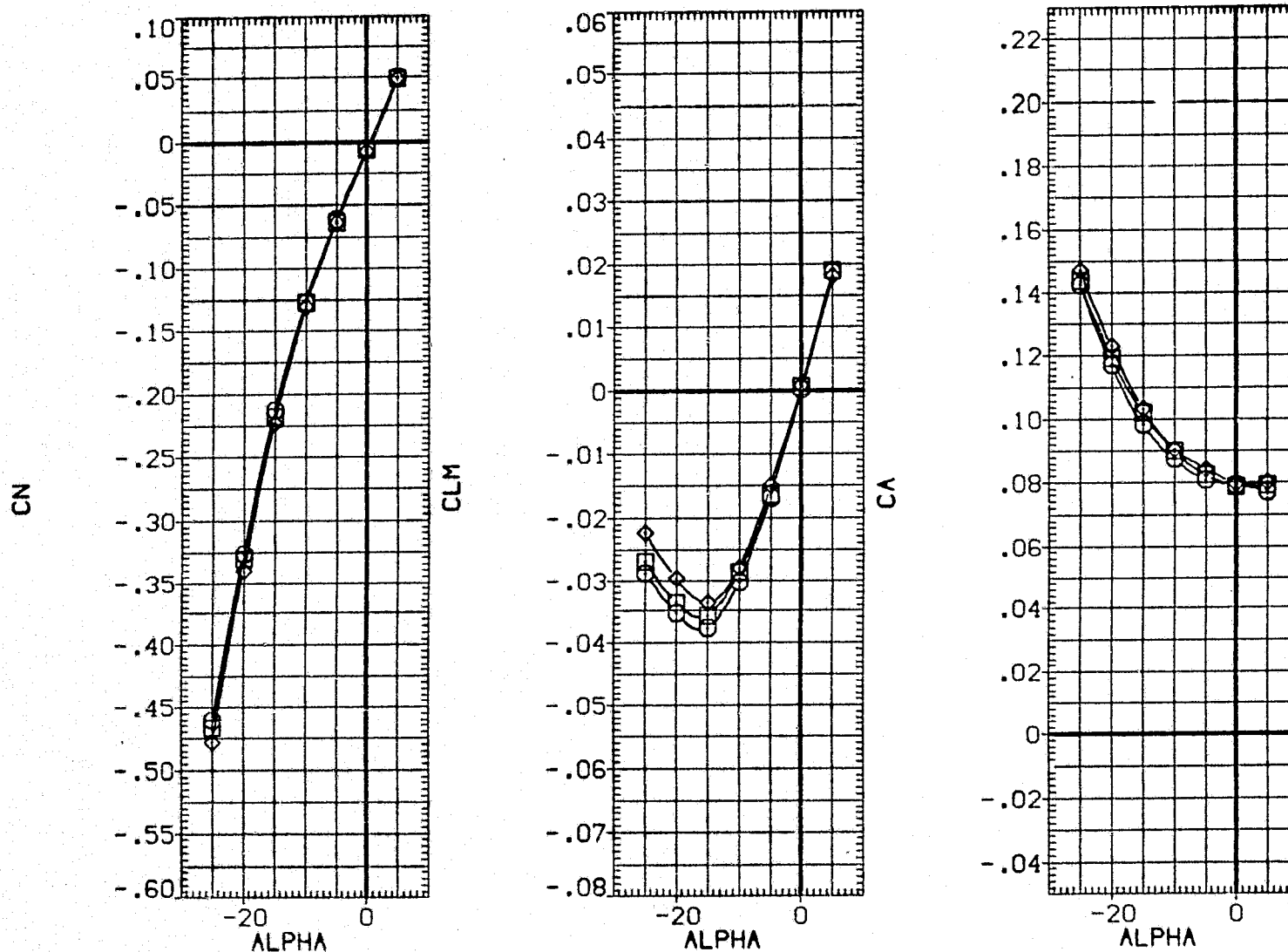


FIGURE 43 EXTERNAL TANK ALONE AERO CHARACTERISTICS AT MACH = 7.98

SYMBOL	BETA	MACH	PARAMETRIC VALUES	GRID	15.000
○	.000				
□	3.000				
◇	6.000				

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

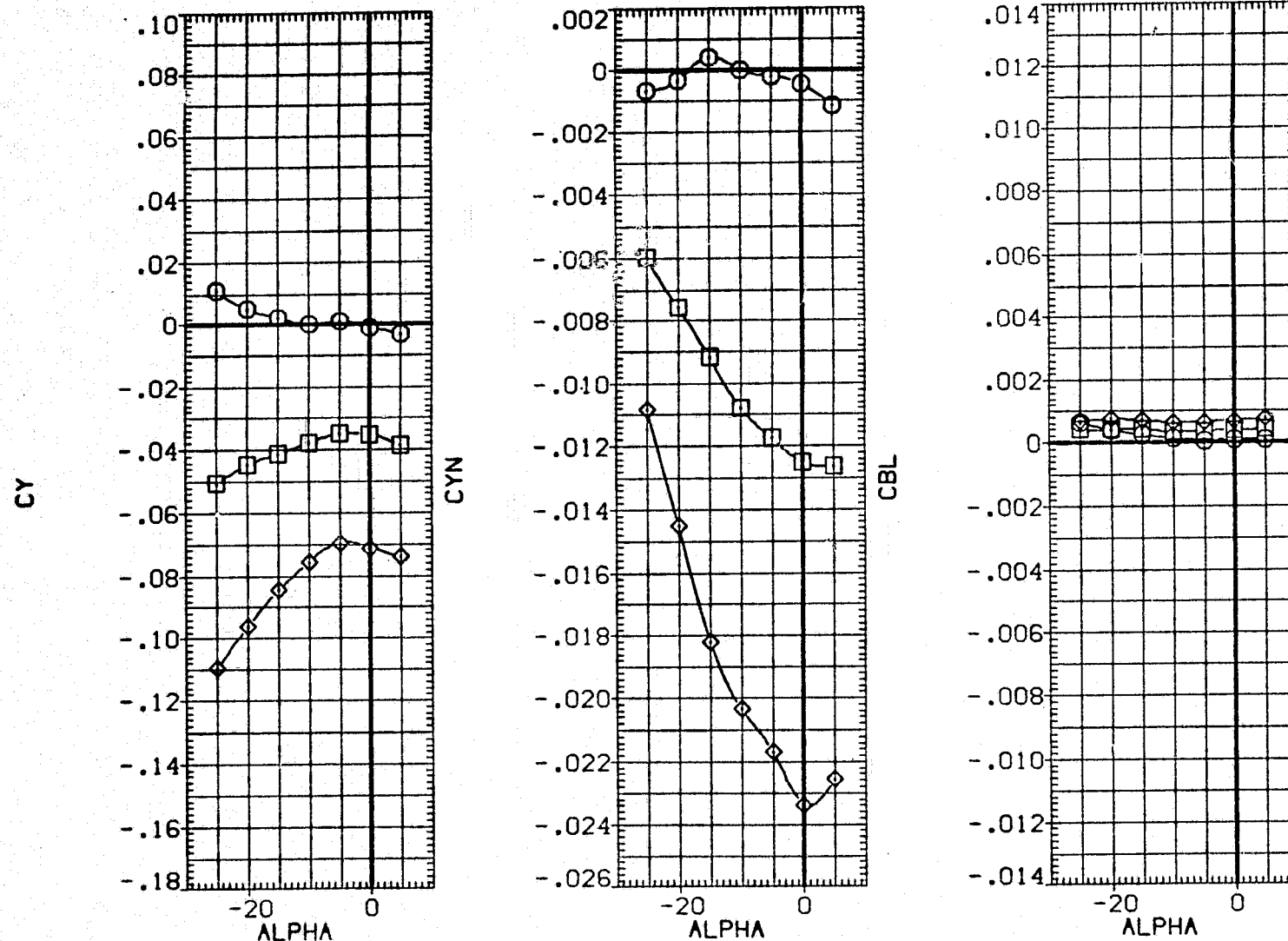


FIGURE 43 EXTERNAL TANK ALONE AERO CHARACTERISTICS AT MACH = 7.98

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(RTR063)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	.000	SREF	2690.0000	SQ.FT.
(RTR060)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	.000	LREF	1290.3000	IN.
(RTR008)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	.000	BREF	1290.3000	IN.
(RTR097)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	.000	XMRP	1089.6000	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0100	

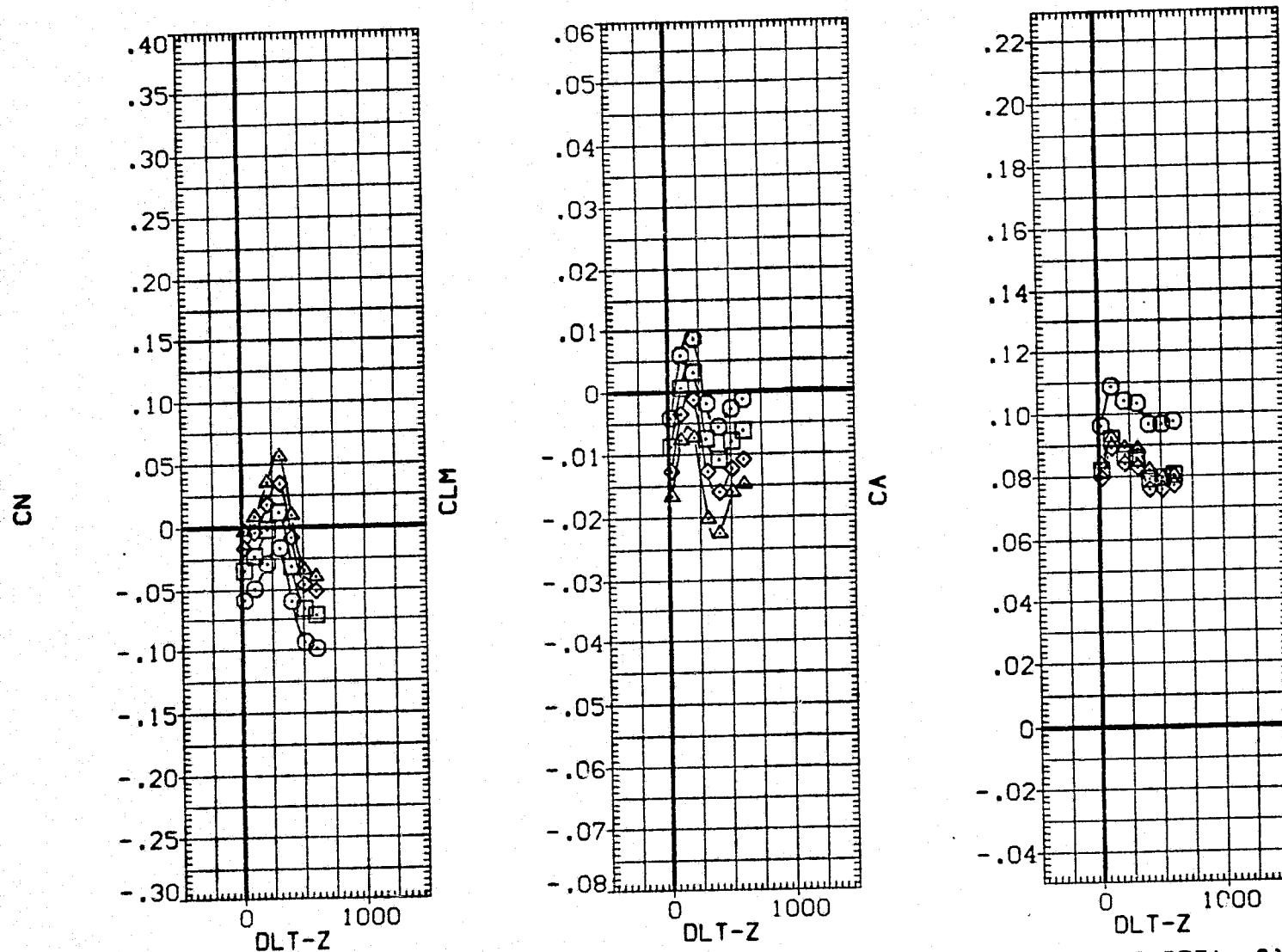


FIGURE 44 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93, ALPHA =0, BETA= 3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION
(RTR063)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	.000	SREF 2690.0000 SQ.FT.
(RTR060)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	.000	LREF 1290.3000 IN.
(RTR008)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	.000	BREF 1290.3000 IN.
(RTR097)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	.000	XMRP 1089.6000 IN. X0
						YMRP .0000 IN. Y0
						ZMRP 375.0000 IN. Z0
						SCALE .0100

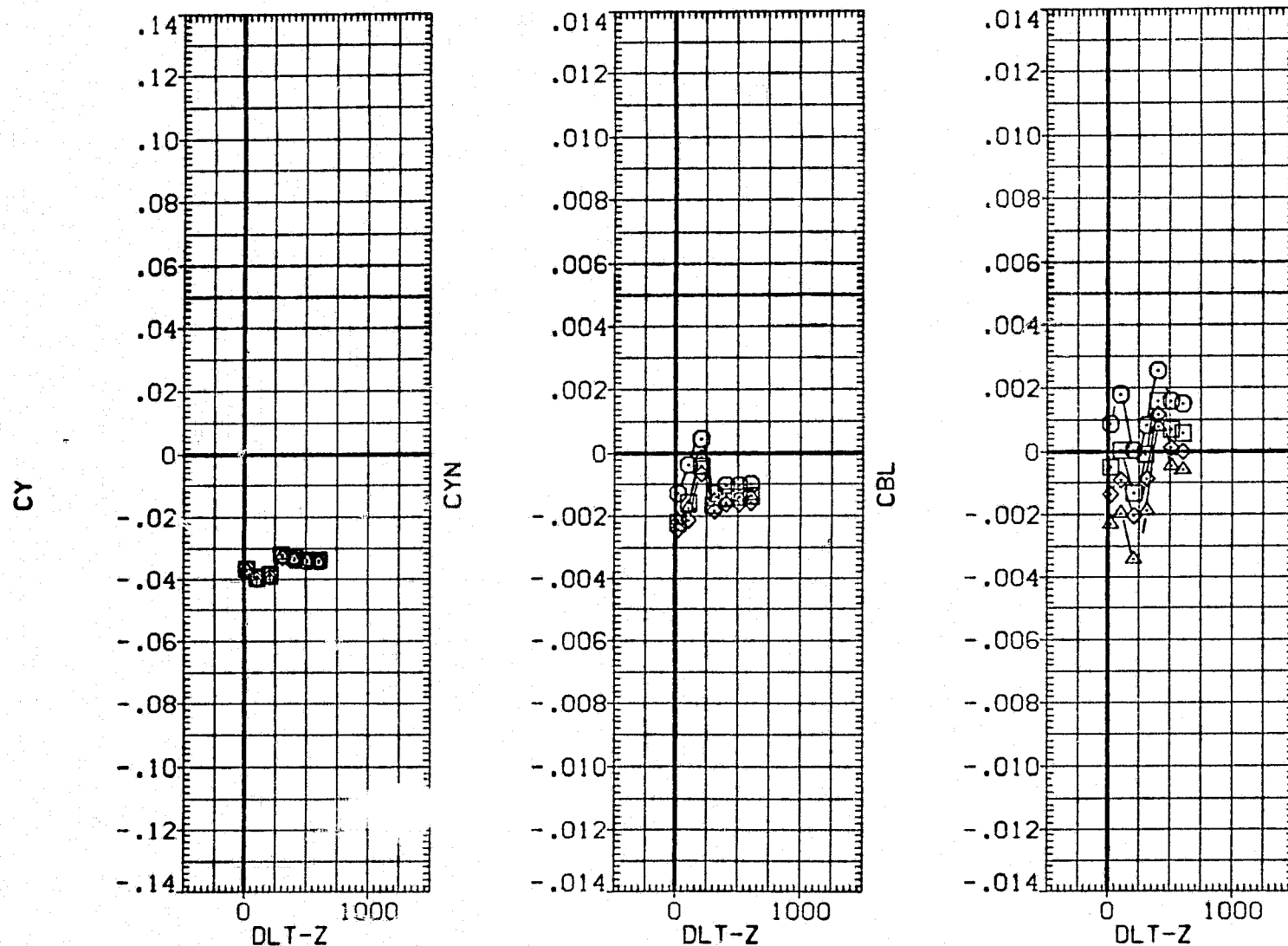


FIGURE 44 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93, ALPHA =0, BETA= 3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR064)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	-10.000	SREF	2690.0000 SQ.FT.
(RTR061)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	-10.000	LREF	1290.3000 IN.
(RTR010)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	-10.000	BREF	1290.3000 IN.
(RTR098)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	-10.000	XMRP	1089.6000 IN. X0
						YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0100

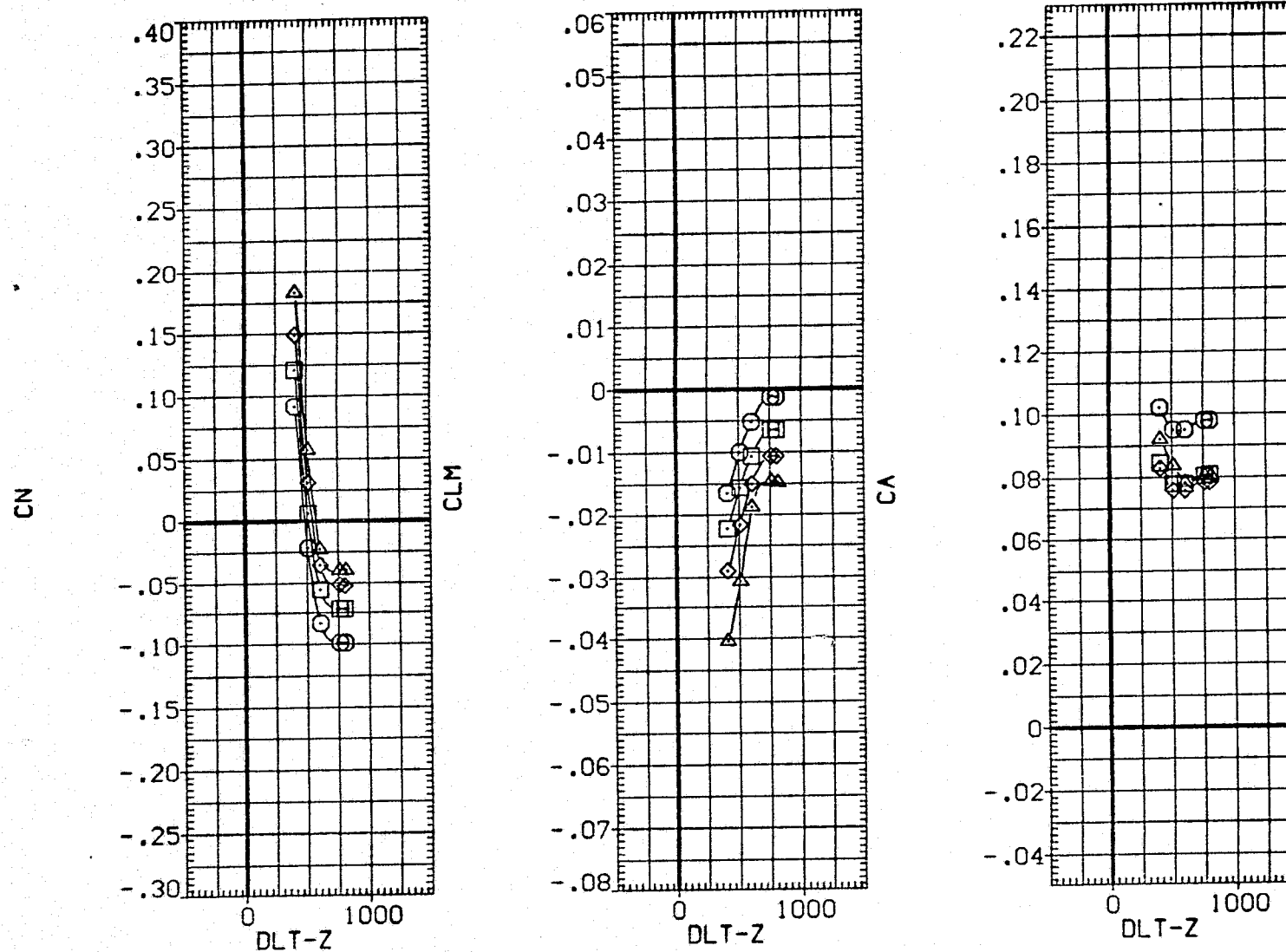


FIGURE 44 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93, ALPHA =0,BETA= 3)
 (A)DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR064)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	-10.000	SREF	2690.0000 SQ.FT.
(RTR061)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	-10.000	LREF	1290.3000 IN.
(RTR010)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	-10.000	BREF	1290.3000 IN.
(RTR098)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	-10.000	XMRP	1089.6000 IN. X0
						YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0100

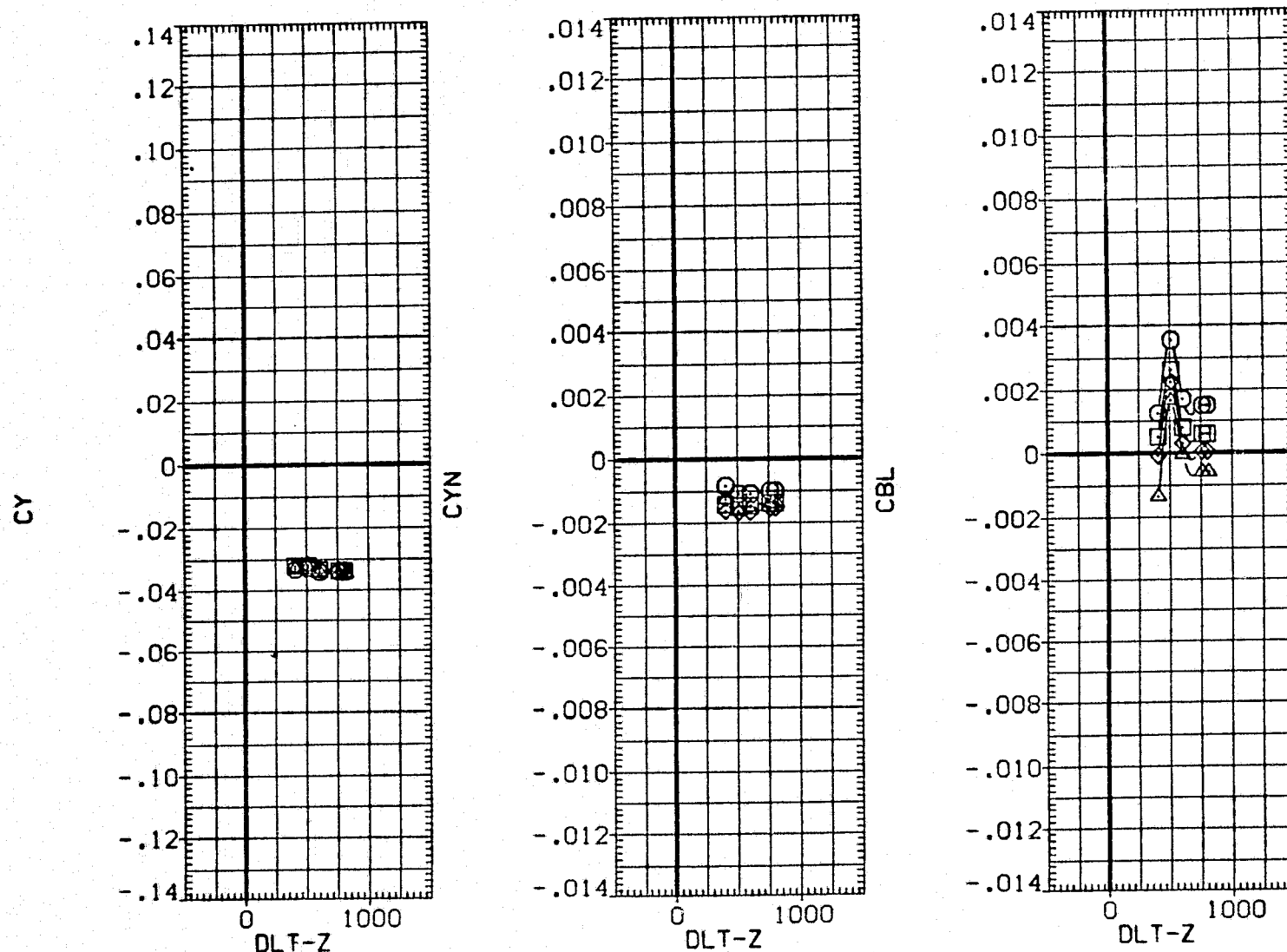


FIGURE 44 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93, ALPHA =0,BETA= 3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(RTR065)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	-20.000	SREF	2690.0000	SQ.FT.
(RTR062)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	-20.000	LREF	1290.3000	IN.
(RTR013)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	.000	BREF	1290.3000	IN.
(RTR099)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	-20.000	XMRP	1089.6000	IN. XO
						YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0100	

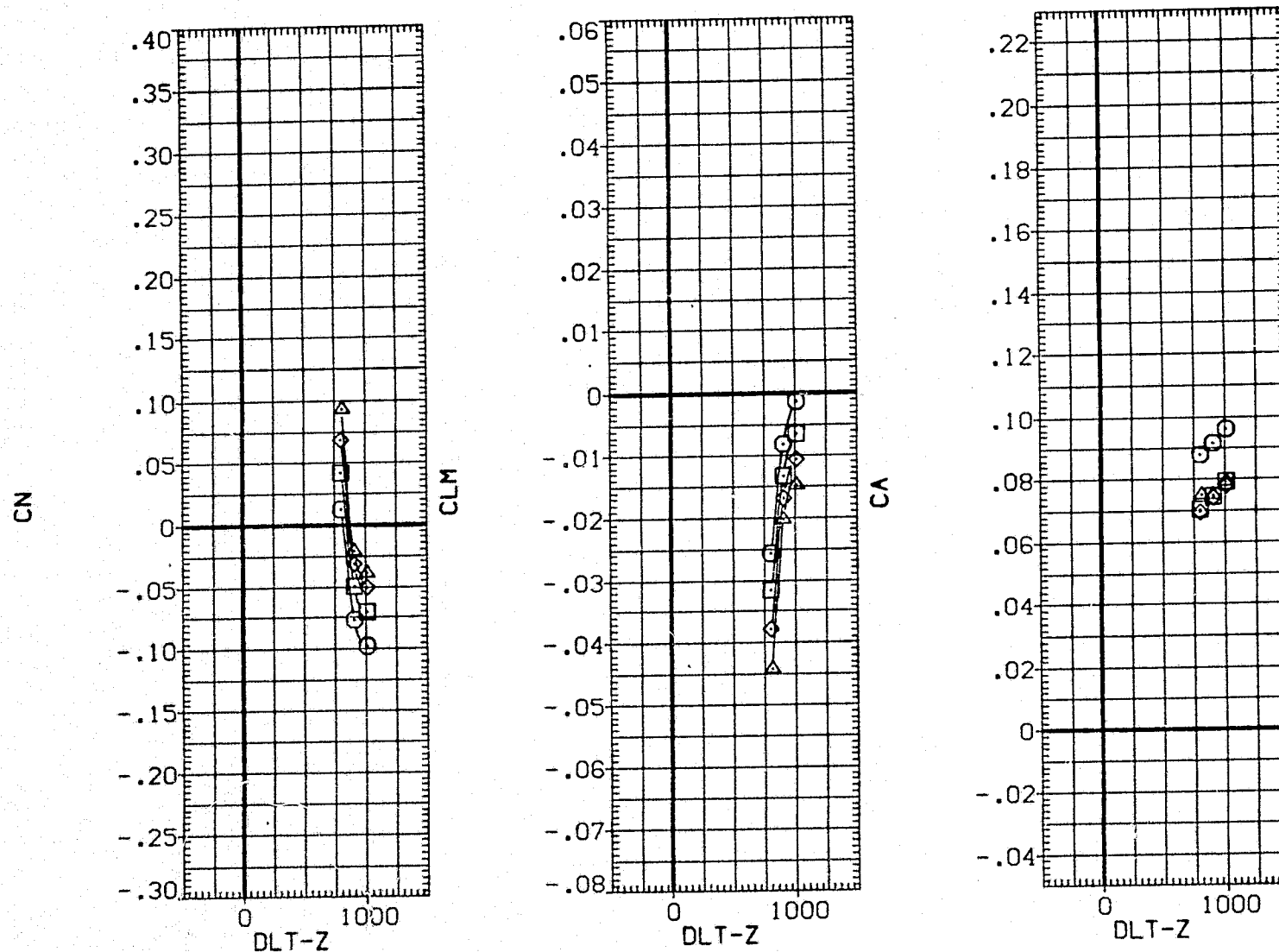


FIGURE 44 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93, ALPHA =0, BETA= 3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(PTR065)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	-20.000	SREF	2690.0000	SQ.FT.
(PTR062)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	-20.000	LREF	1290.3000	IN.
(PTR013)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	.000	BREF	1290.3000	IN.
(PTR099)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	-20.000	XMRP	1089.6000	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0100	

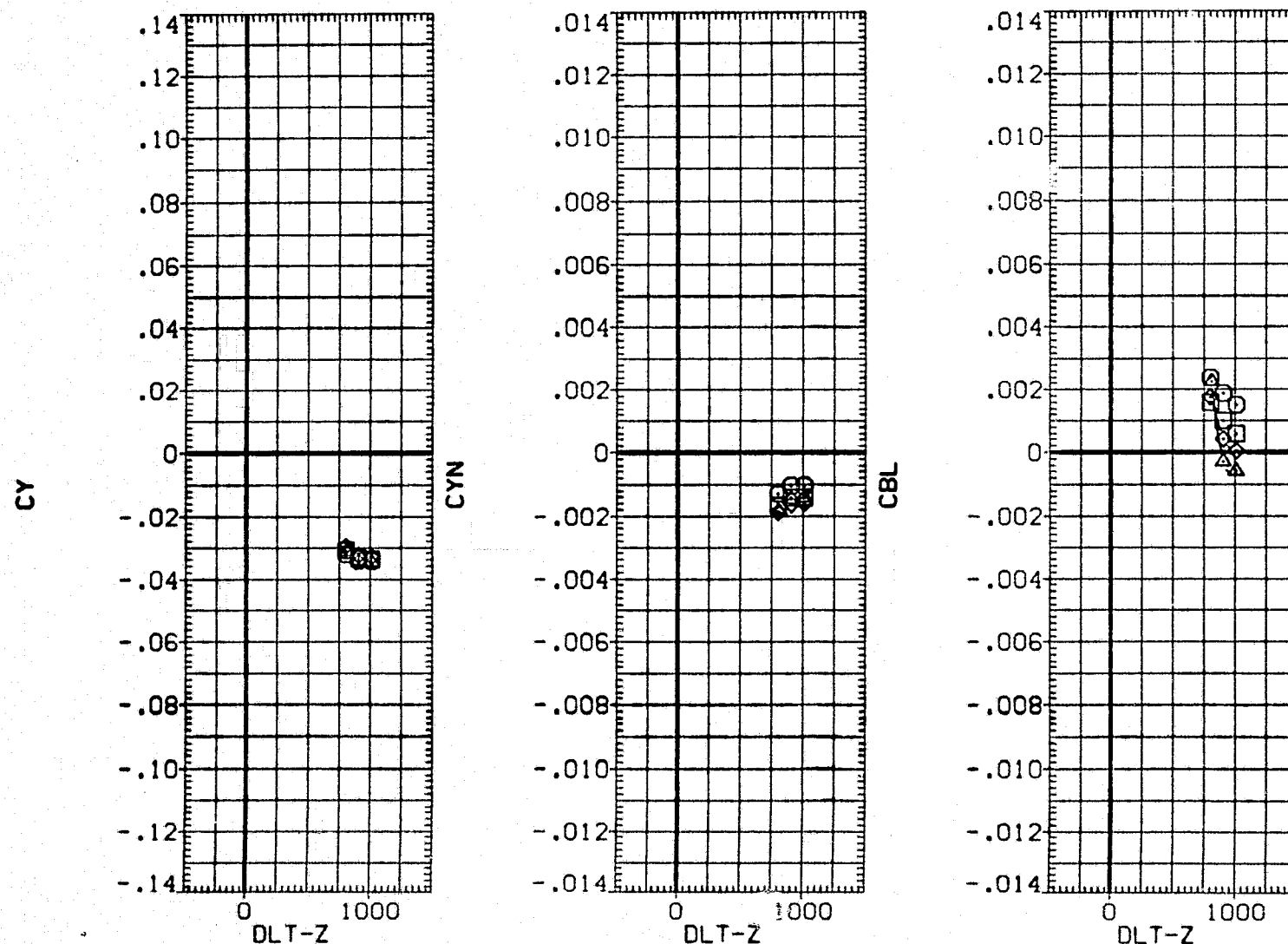


FIGURE 44 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93, ALPHA =0, BETA= 3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR161)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	.000	SREF	2690.0000 SQ.FT.
(RTR155)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	.000	LREF	1290.3000 IN.
(RTR128)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	.000	BREF	1290.3000 IN.
(RTR149)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	.000	XMRP	1089.6000 IN. X0
						YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0100

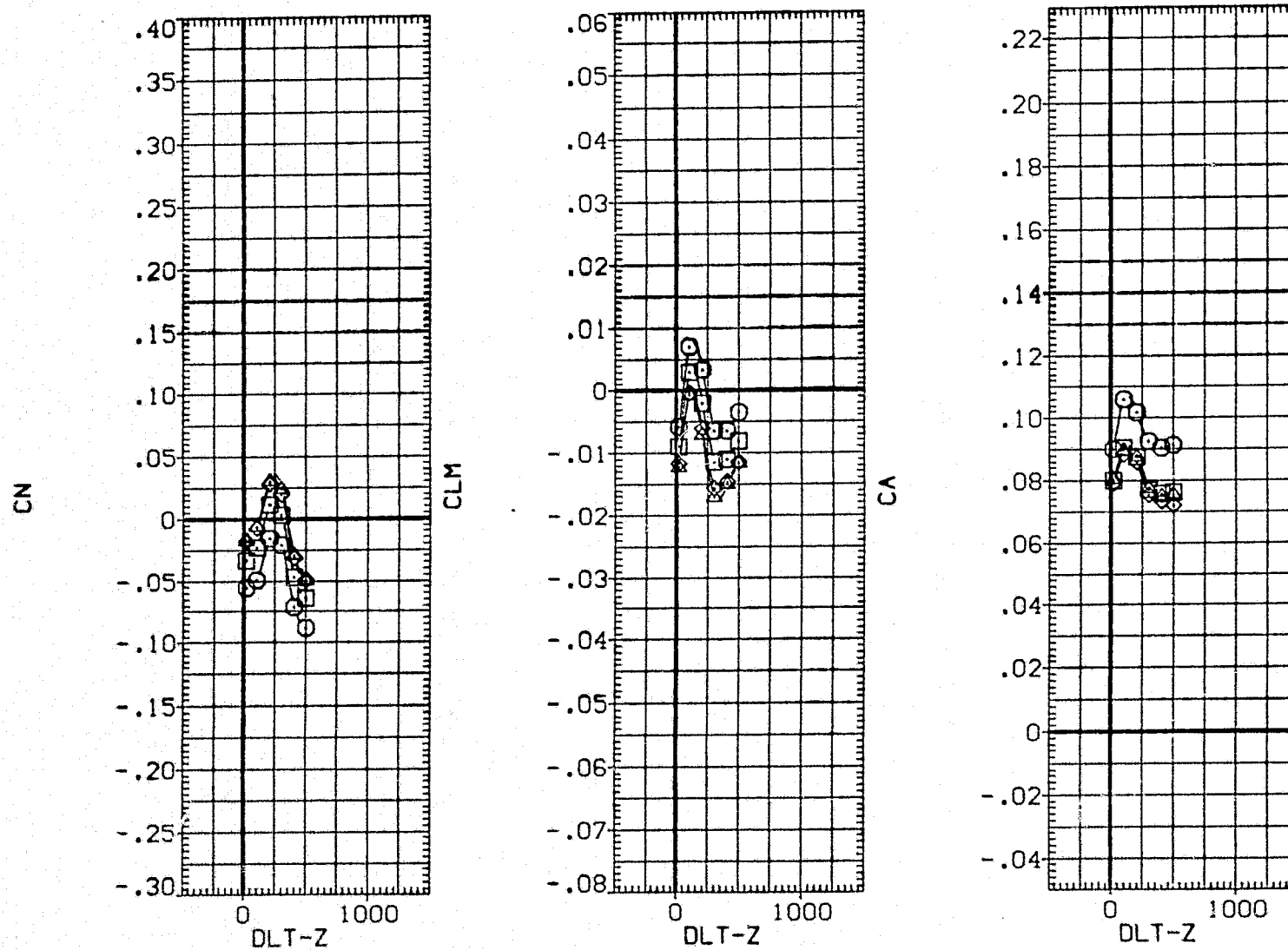


FIGURE 45 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(RTR161)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	.000	SREF	2690.0000	SQ.FT.
(RTR155)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	.000	LREF	1290.3000	IN.
(RTR128)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	.000	BREF	1290.3000	IN.
(RTR149)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	.000	XMRP	1089.6030	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0100	

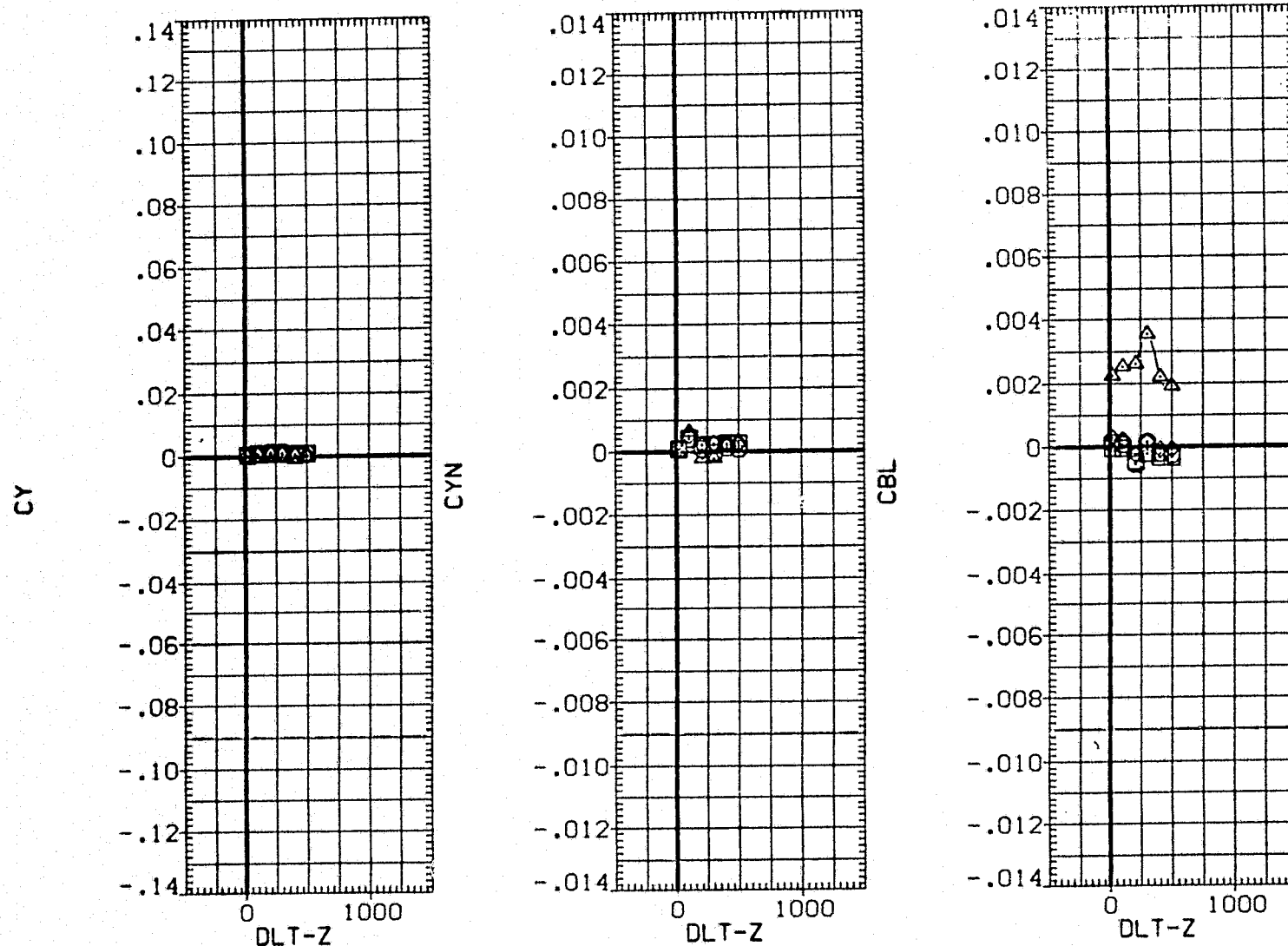


FIGURE 45 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(RTR162)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	-10.000	SREF	2690.0000	SQ.FT.
(RTR156)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	-10.000	LREF	1290.3000	IN.
(RTR130)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	-10.000	BREF	1290.3000	IN.
(RTR150)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	-10.000	XMRP	1089.6000	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0100	

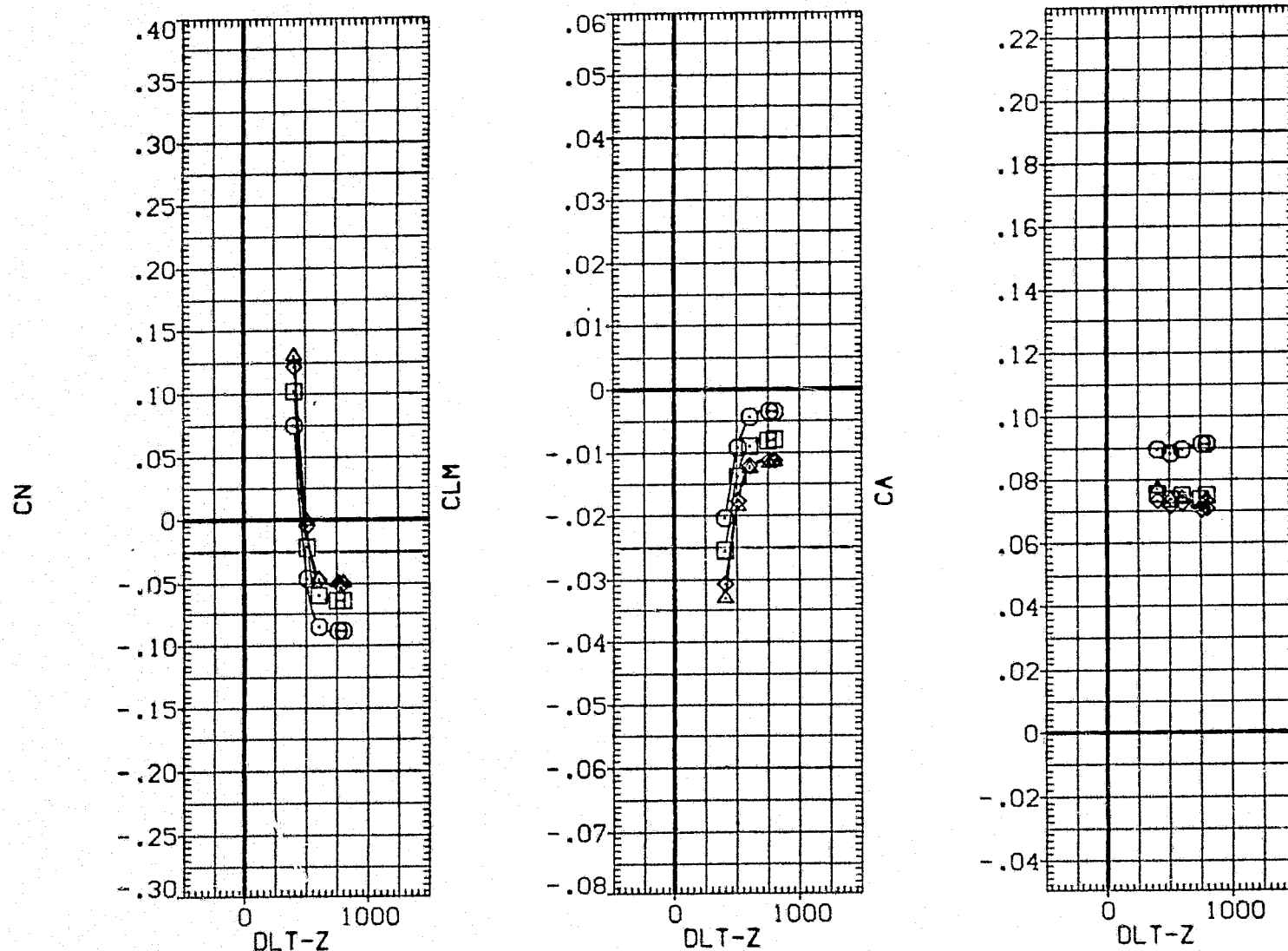


FIGURE 45 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION
(RTR162)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	-10.000	SREF .630.0000 SQ.FT.
(RTR156)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	-10.000	LREF .290.3000 IN.
(RTR130)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	-10.000	BREF .1290.3000 IN.
(RTR150)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	-10.000	XMRP 1089.6000 IN. X0
						YMRP .0000 IN. Y0
						ZMRP 375.0000 IN. Z0
						SCALE .0100

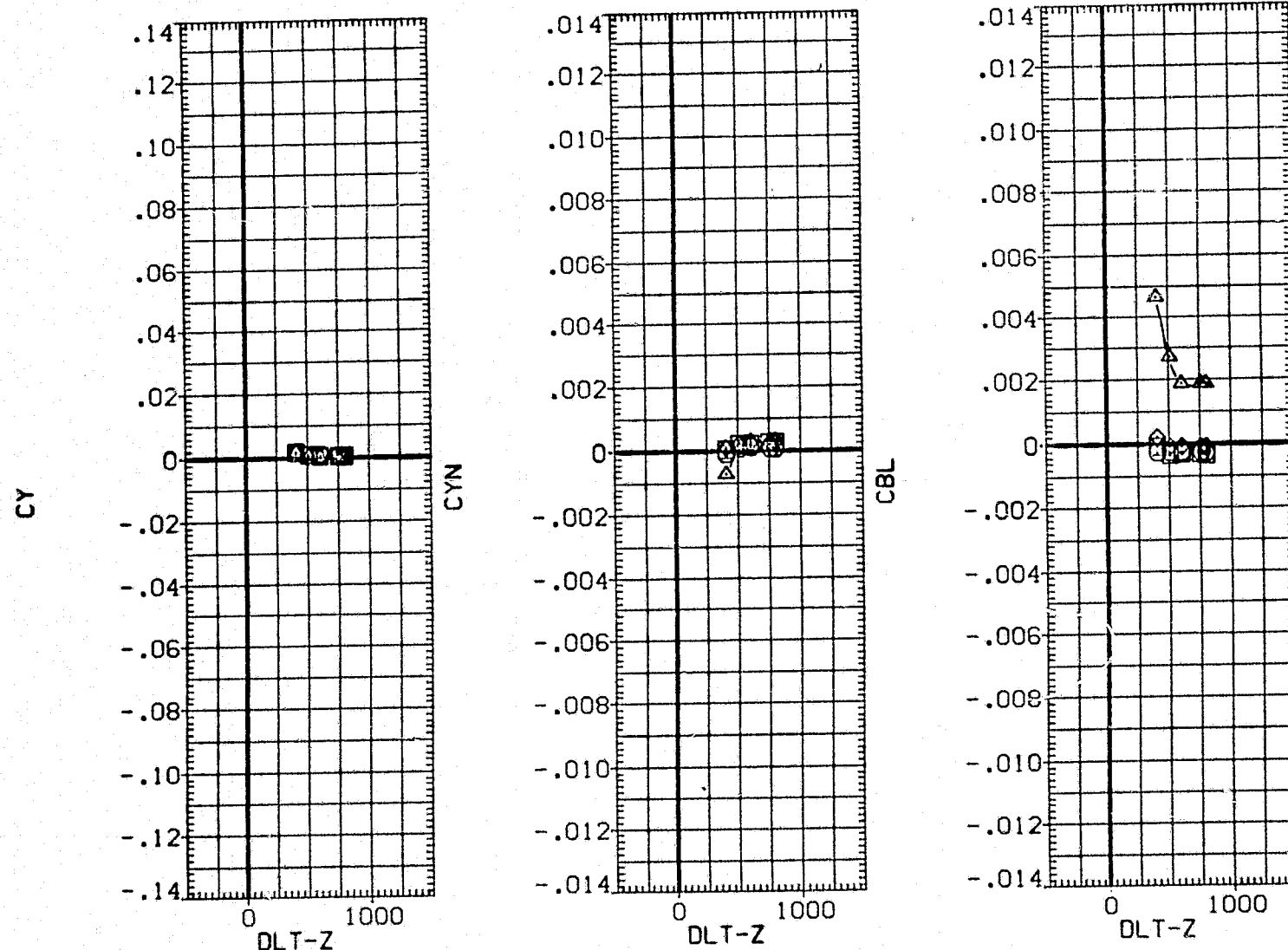


FIGURE 45 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)

(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR163)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	-20.000	SREF	2690.0000 SQ.FT.
(RTR157)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	-20.000	LREF	1290.3000 IN.
(RTR151)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	-20.000	BREF	1290.3000 IN.
						XMRP	1089.6000 IN. X0
						YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0100

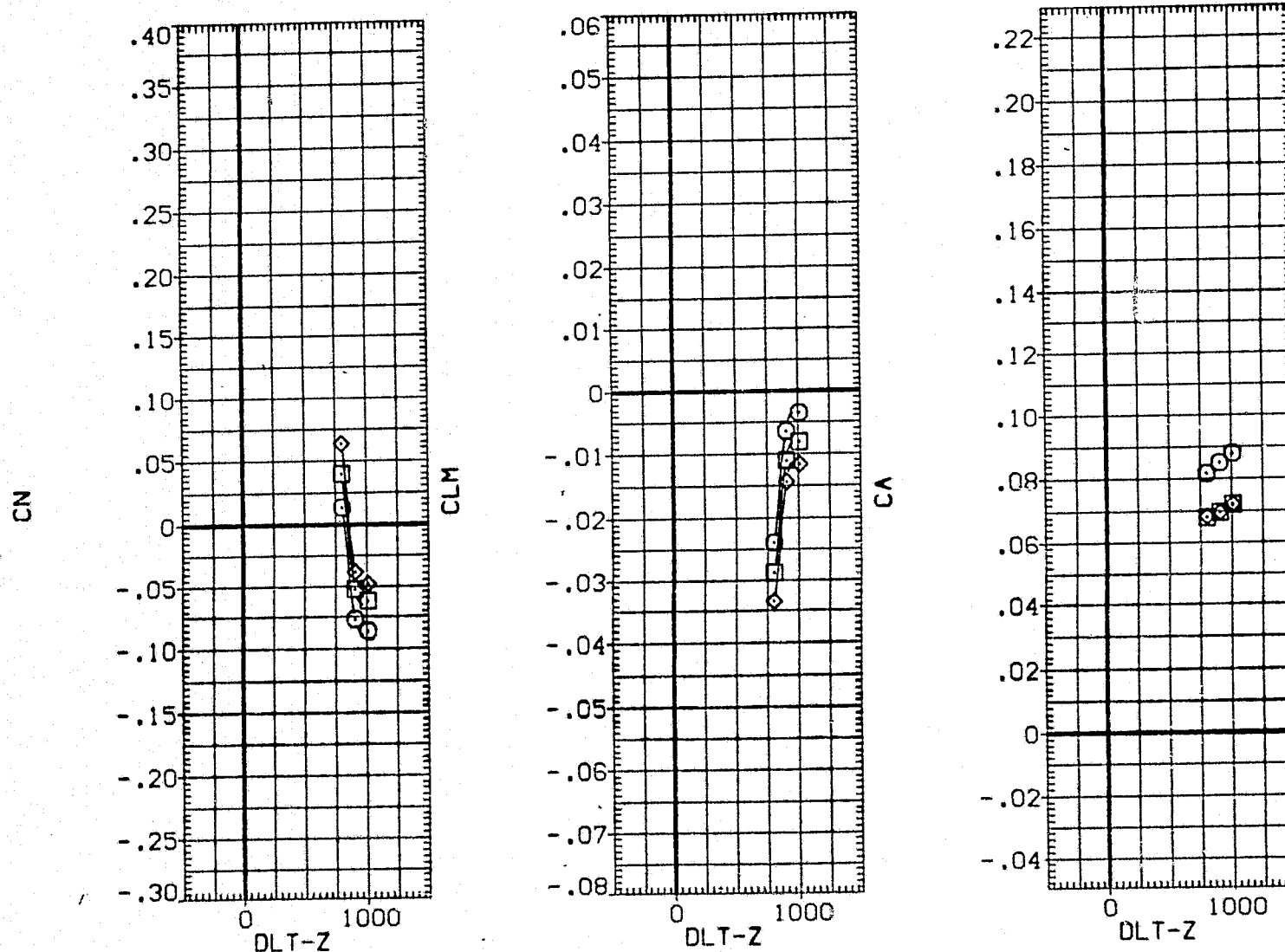


FIGURE 45 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR163)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	-20.000	SREF	2630.0000 SQ.FT.
(RTR157)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	-20.000	LREF	1290.3000 IN.
(RTR151)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	-20.000	BREF	1290.3000 IN.
						XMRP	1089.6000 IN. X0
						YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0160

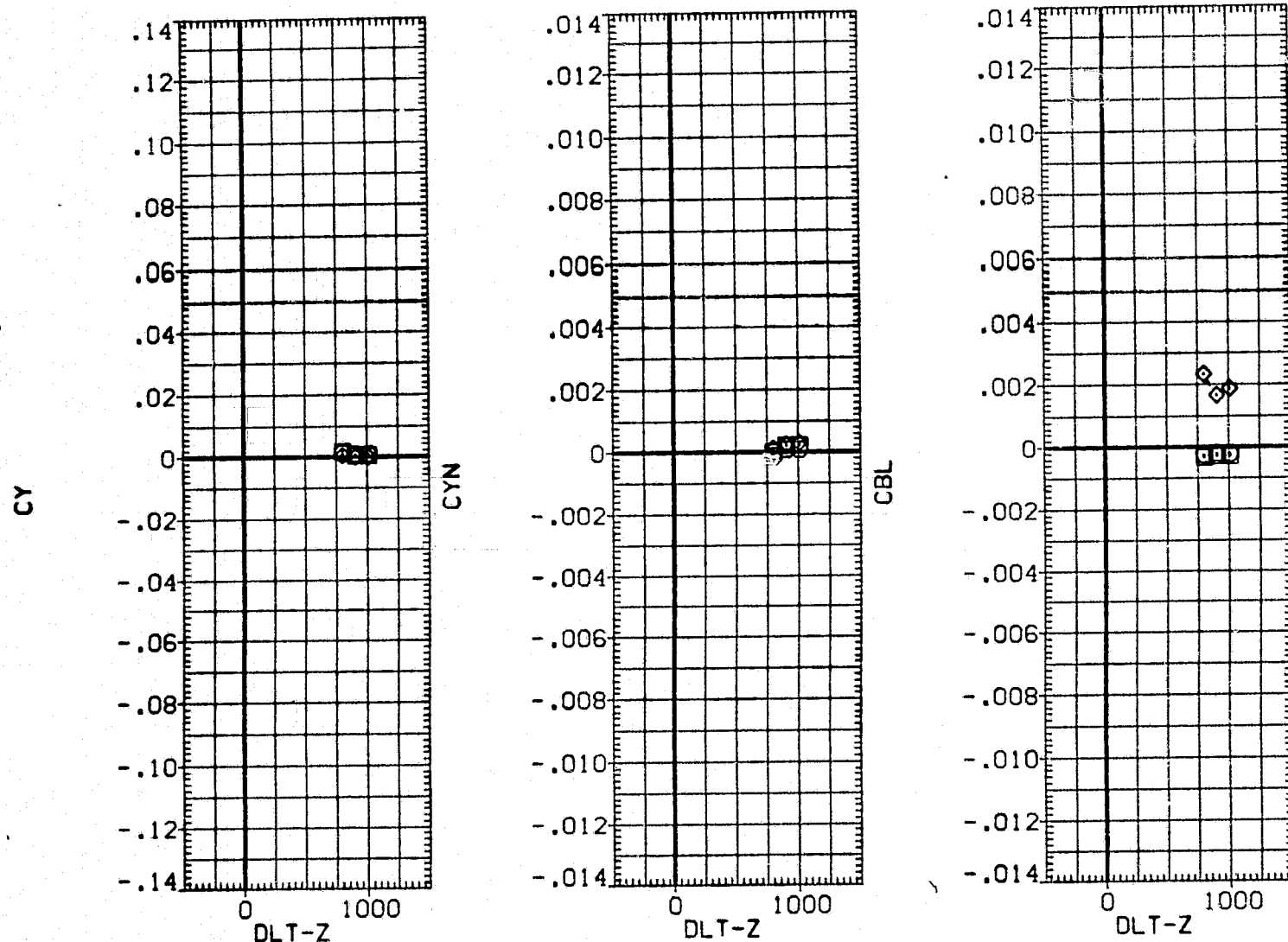


FIGURE 45 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR164)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	.000	SREF	2690.0000 SQ.FT.
(RTR158)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	.000	LREF	1290.3000 IN.
(RTR171)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	.000	BREF	1290.3000 IN.
(RTR152)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	.000	XMRP	1089.6000 IN. X0
						YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0100

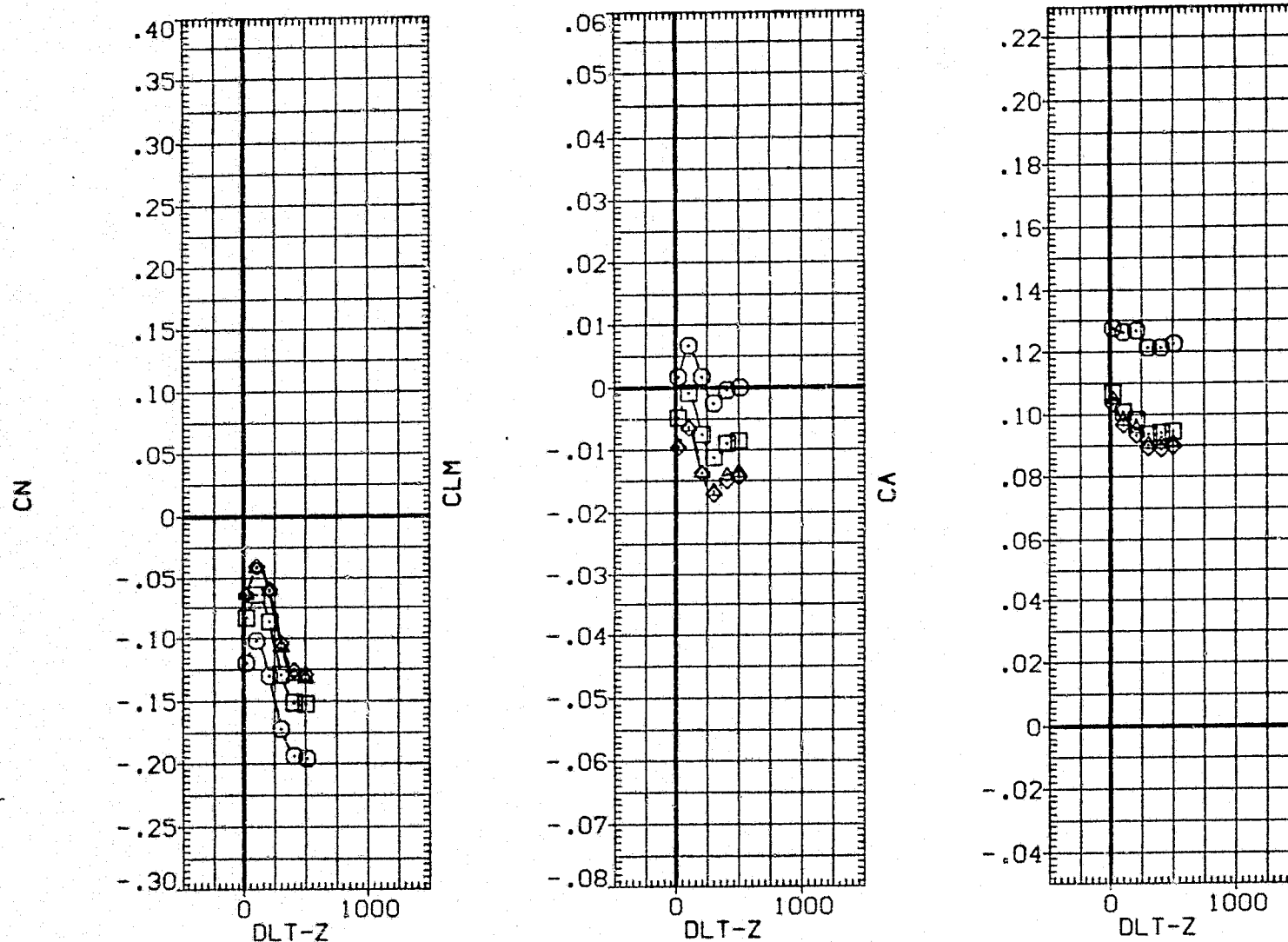


FIGURE 46 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELEVON AILERON BETA DLTALF REFERENCE INFORMATION

(RTR164)	□	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	.000	SREF	2690.0000	SQ.FT.
(RTR158)	□	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	.000	LREF	1290.3000	IN.
(RTR171)	△	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	.000	BREF	1290.3000	IN.
(RTR152)	△	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	.000	XMRP	1089.6000	IN. X0
							YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0100	

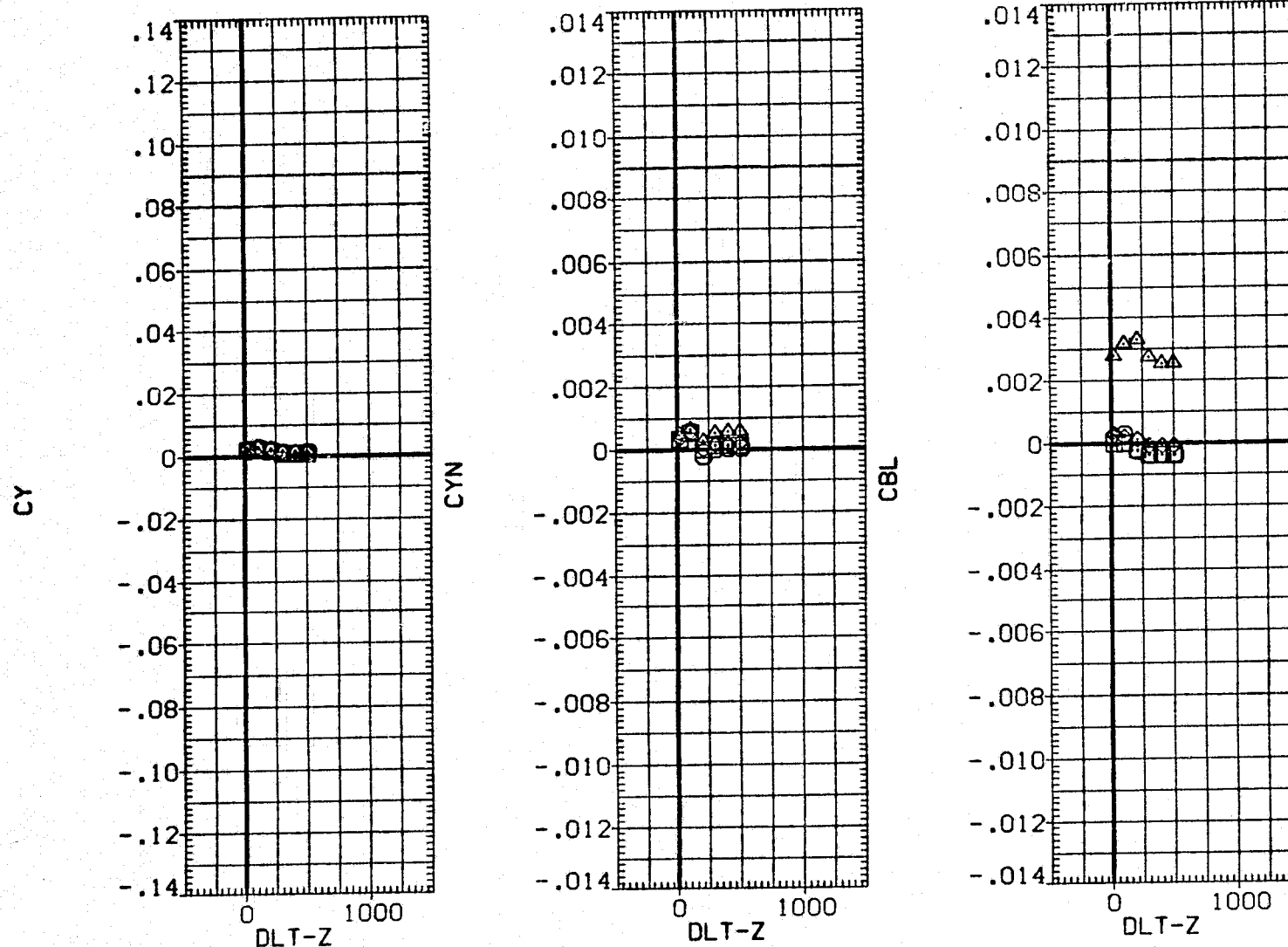


FIGURE 46 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)

(A) DLT-X = .00

PAGE 1378

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR165)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	-10.000	SREF	2690.0000 SQ.FT.
(RTR159)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	-10.000	LREF	1290.3000 IN.
(RTR173)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	-10.000	BREF	1290.3000 IN.
(RTR153)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	-10.000	XMRP	1089.6000 IN. X0
						YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0100

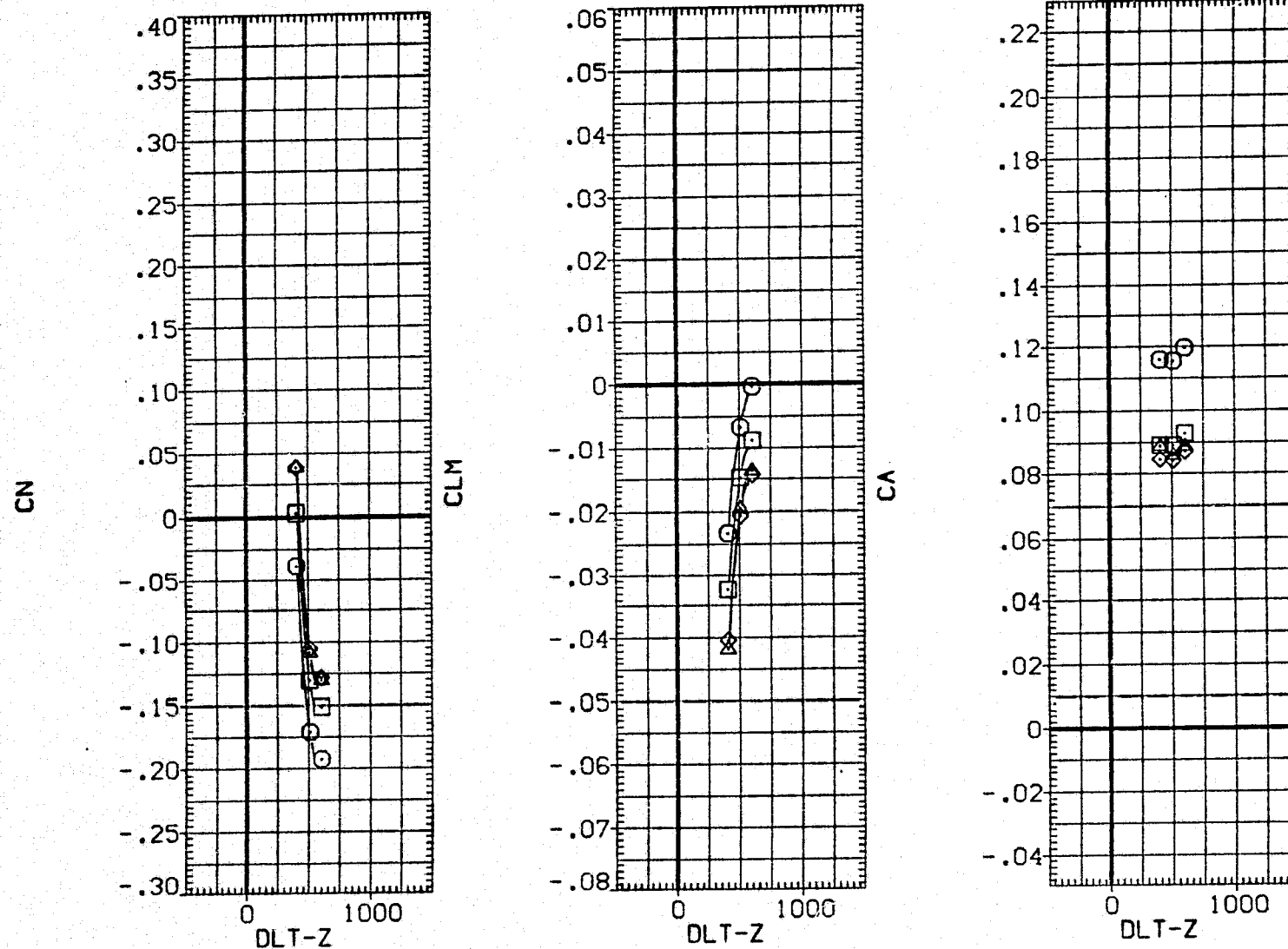


FIGURE 46 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA=-5,BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR165)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	-10.000	SREF	2690.0000 SQ.FT.
(RTR159)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	-10.000	LREF	1290.3000 IN.
(RTR173)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	-10.000	BREF	1290.3000 IN.
(RTR153)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	-10.000	XMRP	1089.6000 IN. X0
						YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0100

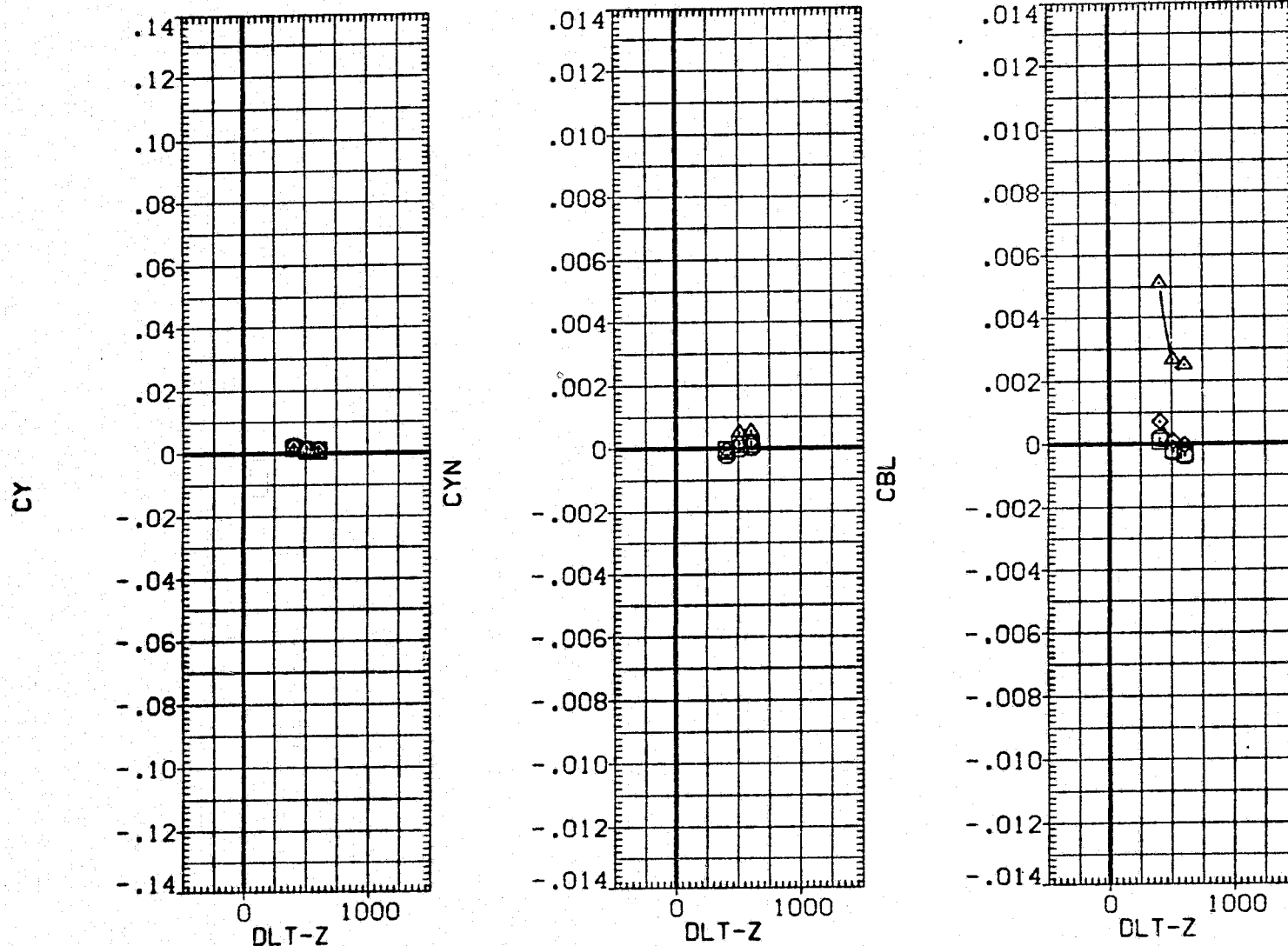


FIGURE 46 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR166)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	-20.000	SREF	2690.0000 SQ.FT.
(RTR160)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	-20.000	LREF	1290.3000 IN.
(RTR176)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	-20.000	BREF	1290.3000 IN.
(RTR154)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	-20.000	XMRF	1089.6000 IN. X0
						YMRF	.0000 IN. Y0
						ZMRF	375.0000 IN. Z0
						SCALE	.0100

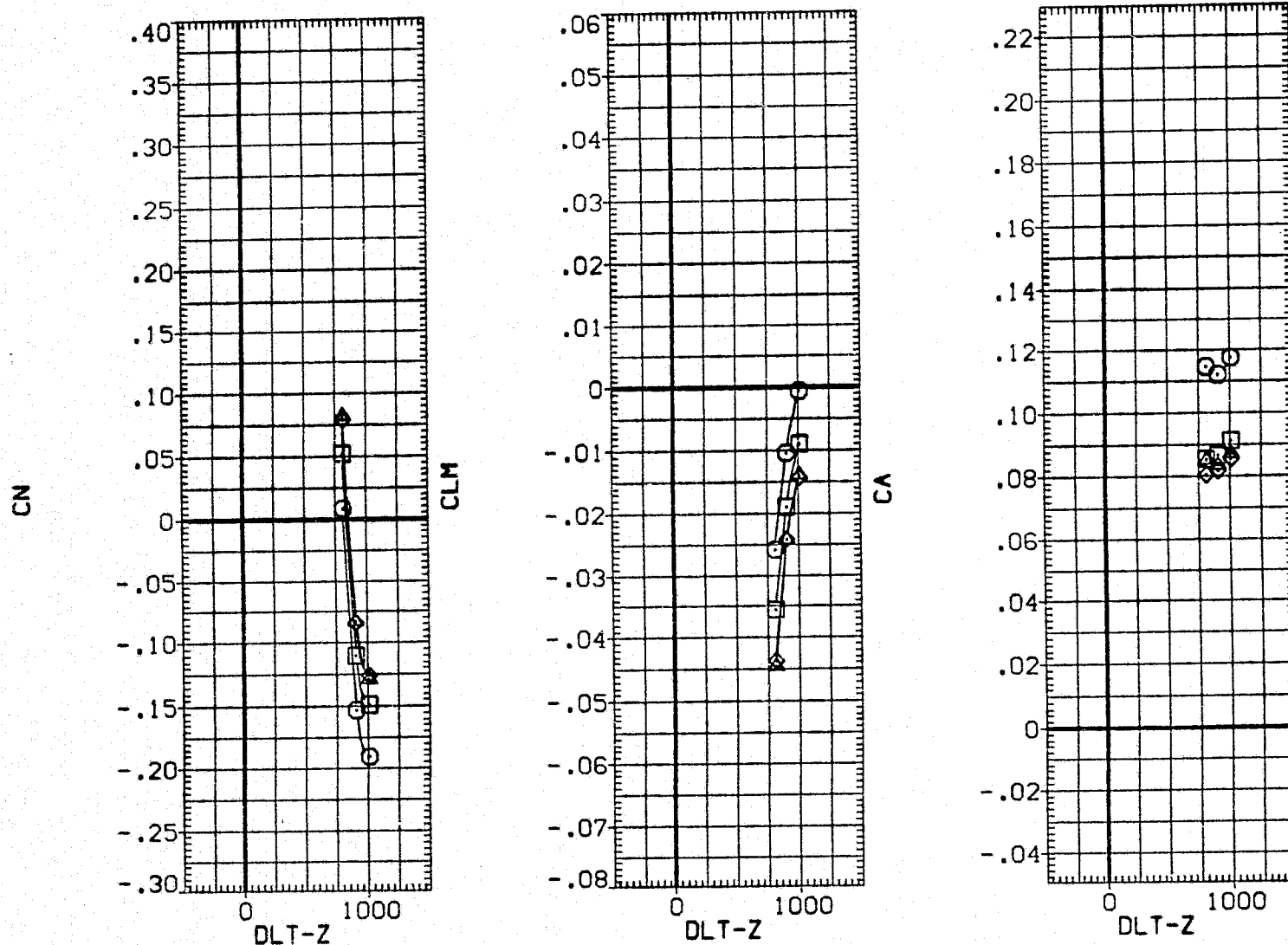


FIGURE 46 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(RTR166)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	.000	-20.000	SREF	2690.0000	SQ.FT.
(RTR160)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	.000	-20.000	LREF	1290.3000	IN.
(RTR176)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	.000	-20.000	BREF	1290.3000	IN.
(RTR154)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	.000	-20.000	XMRP	1089.6000	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0100	

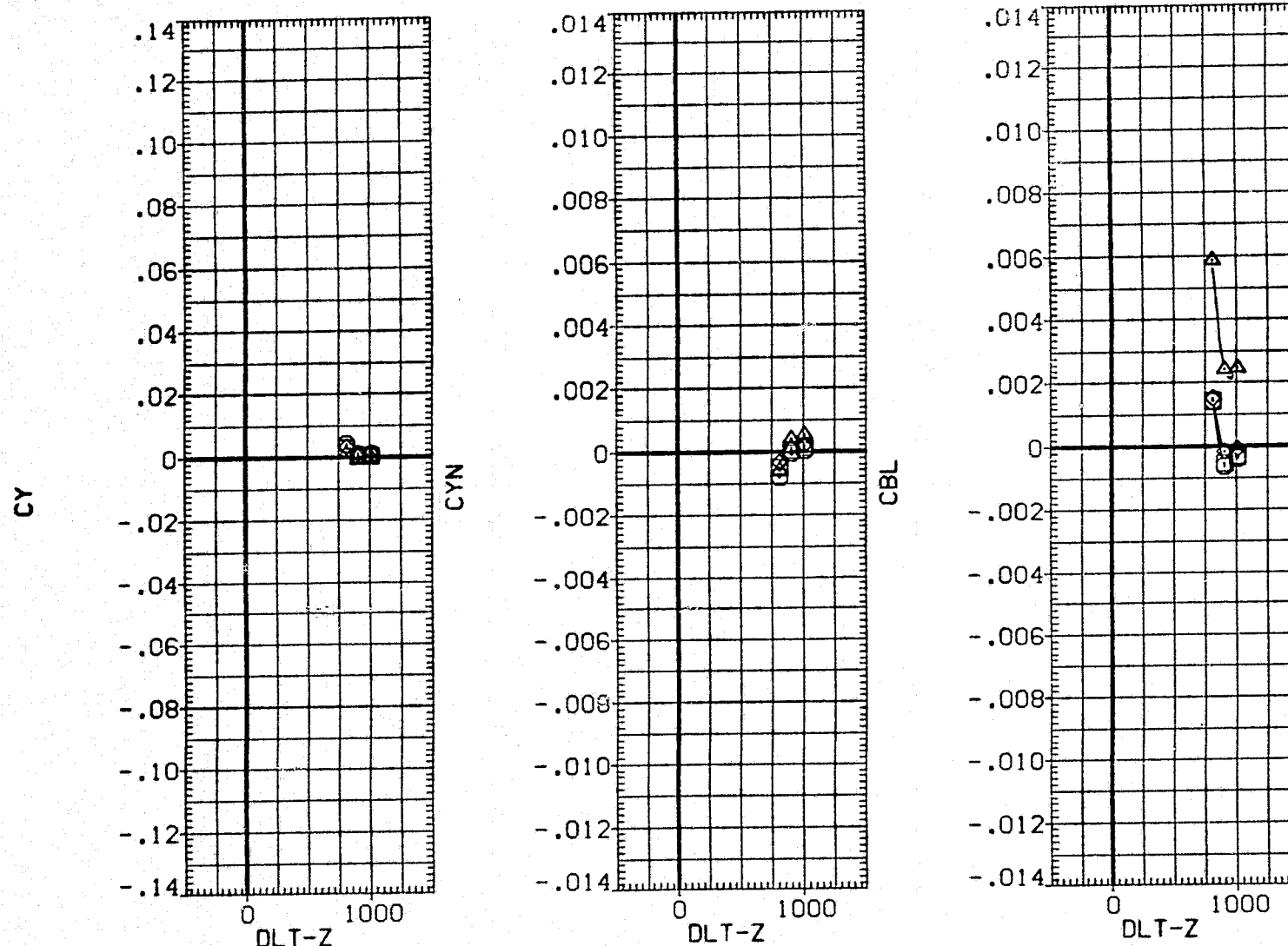


FIGURE 46 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(RTR273)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	.000	SREF	2690.0000	SQ.FT.
(RTR215)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	.000	LREF	1290.3000	IN.
(RTR293)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	3.000	.000	BREF	1290.3000	IN.
(RTR310)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	.000	XMRP	1089.6000	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0100	

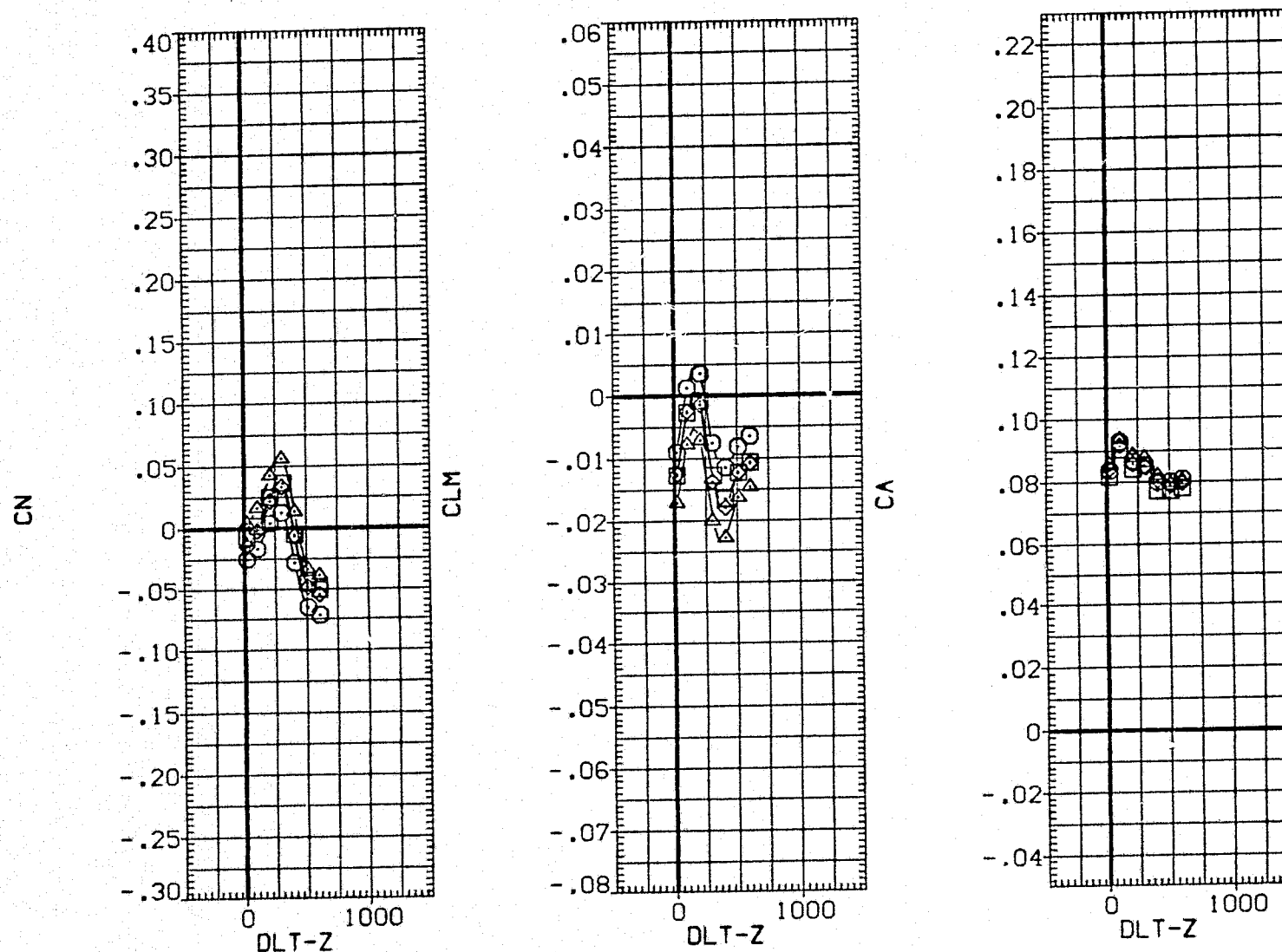


FIGURE 47 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93, DLT-Y= 60, DLTBTA=3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(RTR273)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	.000	SREF	2690.0000	50.FT.
(RTR215)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	.000	LREF	1290.3000	IN.
(RTR293)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	3.000	.000	BREF	1290.3000	IN.
(RTR310)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	.000	XMRP	1089.6000	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0100	

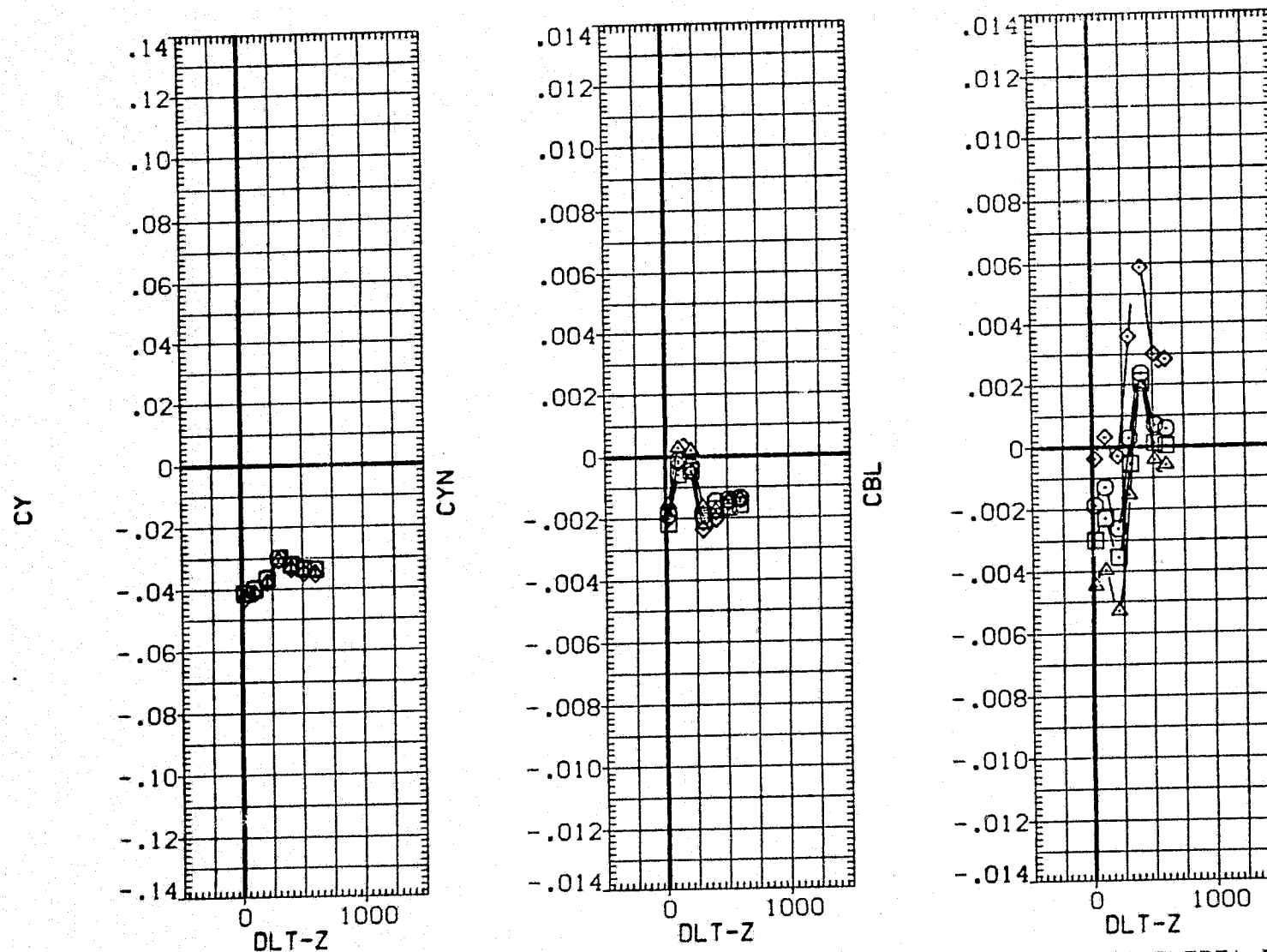


FIGURE 47 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93,DLT-Y= 60,DLTBTA=3)
 (A)DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR277)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	-10.000	SREF	2690.0000 SQ.FT.
(RTR274)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	-10.000	LREF	1290.3000 IN.
(RTR216)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	-10.000	BREF	1290.3000 IN.
(RTR294)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	3.000	-10.000	XMRF	1089.6000 IN. X0
(RTR311)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	-10.000	YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0100

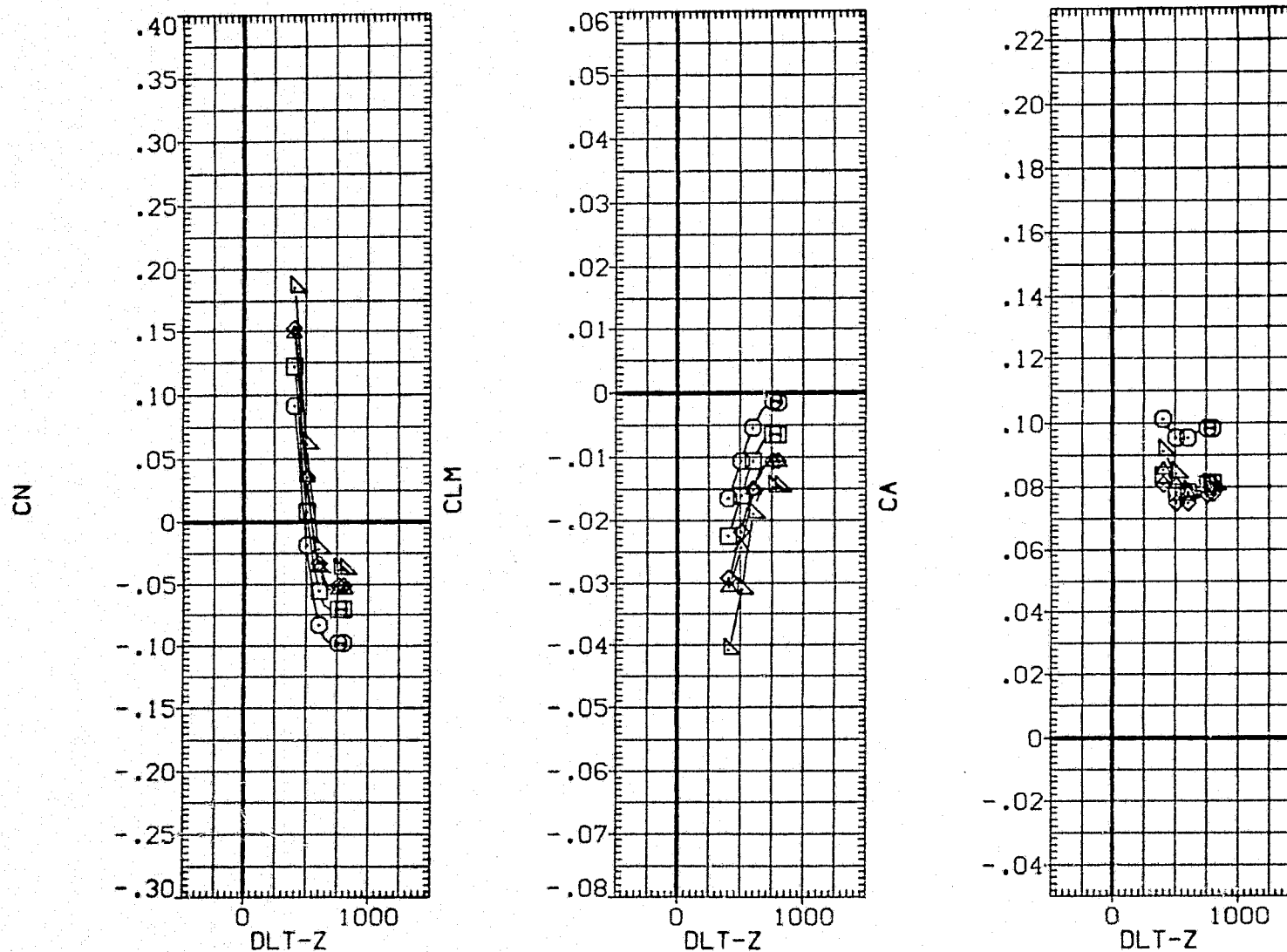


FIGURE 47 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93, DLT-Y= 60, DLTBT=3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION
(RTR277)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	-10.000	SREF 2690.0000 SQ.FT.
(RTR274)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	-10.000	LREF 1290.3000 IN.
(RTR216)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	-10.000	BREF 1290.3000 IN.
(RTR294)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	3.000	-10.000	XMRP 1089.6000 IN. XC
(RTR311)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	-10.000	YMRP .0000 IN. YC
						ZMRP 375.0000 IN. ZC
						SCALE .0100

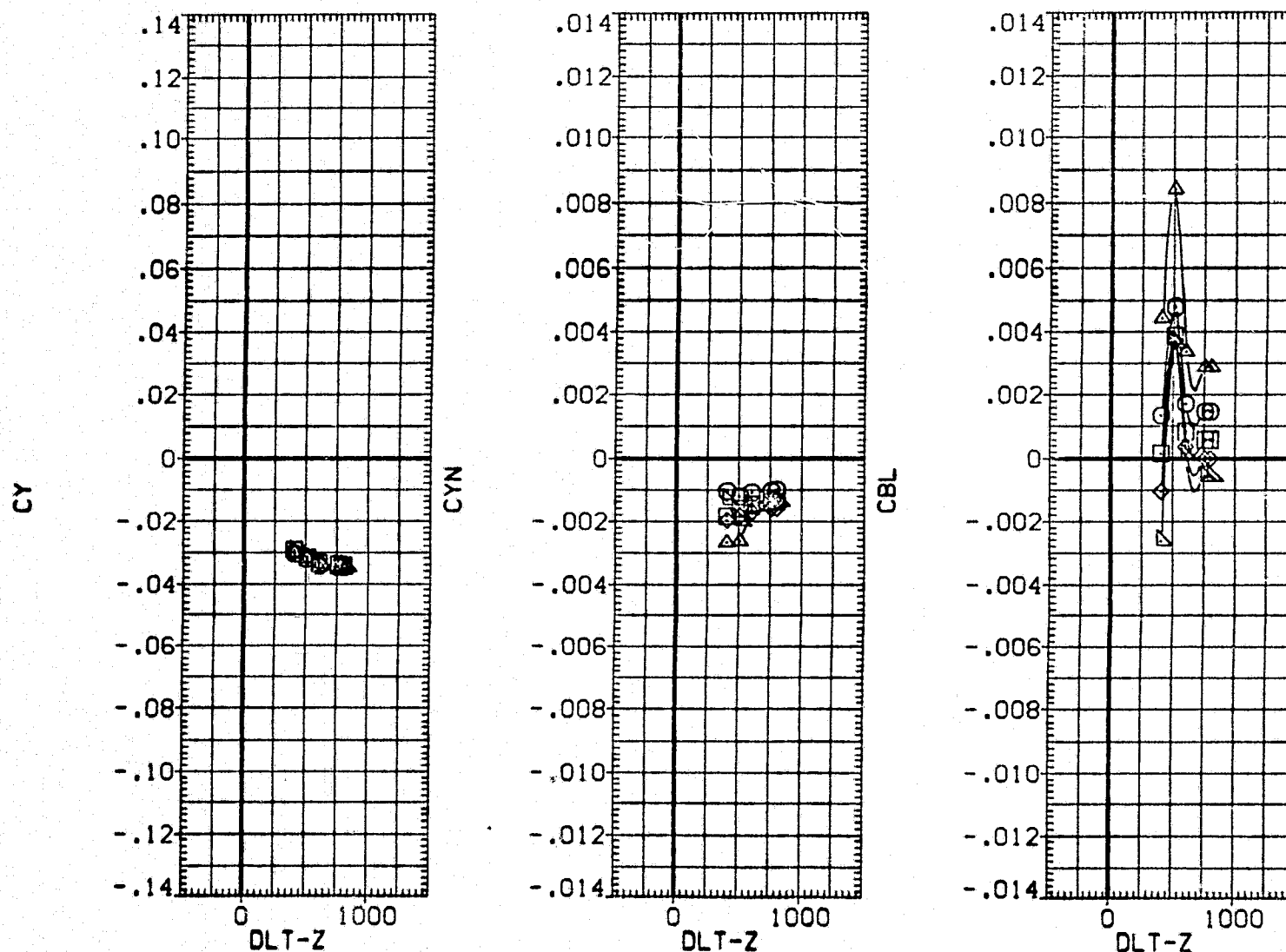


FIGURE 47 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH=5.93, DLT-Y= 60, DLTBTA=3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(RTR278)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	-20.000	SREF	2690.0000 SQ.FT.
(RTR275)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	-20.000	LREF	1290.3000 IN.
(RTR218)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	-20.000	BREF	1290.3000 IN.
(RTR295)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	3.000	-20.000	XMRP	1089.6000 IN. X0
(RTR312)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	-20.000	YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0100

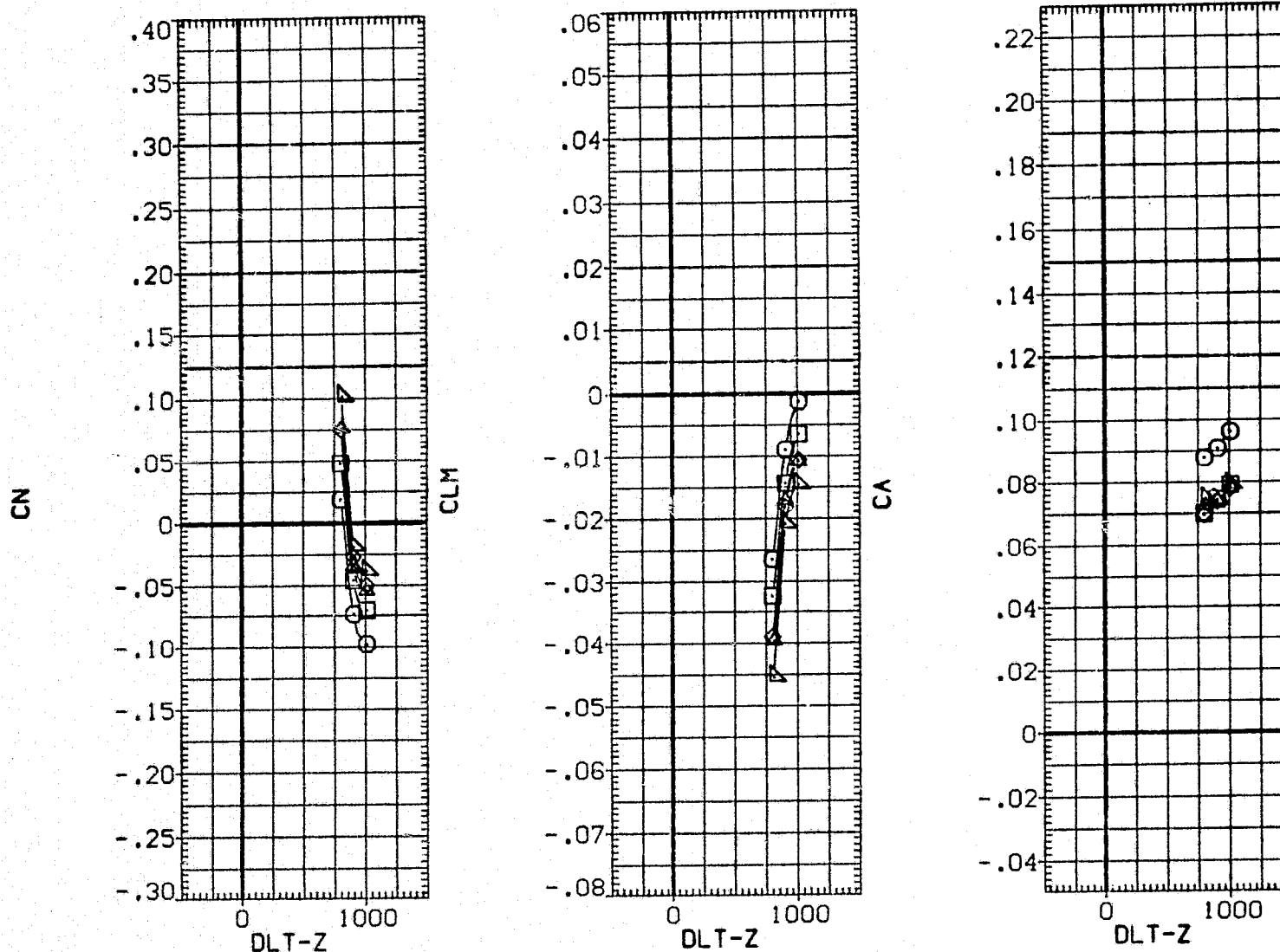


FIGURE 47 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93, DLT-Y= 60, DLTBTA=3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(RTR278)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-40.000	.000	3.000	-20.000	SREF	2590.0000	SO.FT.
(RTR275)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	-20.000	.000	3.000	-20.000	LREF	1290.3000	IN.
(RTR218)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	.000	3.000	-20.000	SREF	1290.3000	IN.
(RTR295)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	.000	15.000	3.000	-20.000	XMRP	1089.6000	IN. XO
(RTR312)	AEDC VA422(1A17) ORB AND ET SEPARATING(ORB DATA)	15.000	.000	3.000	-20.000	YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0100	

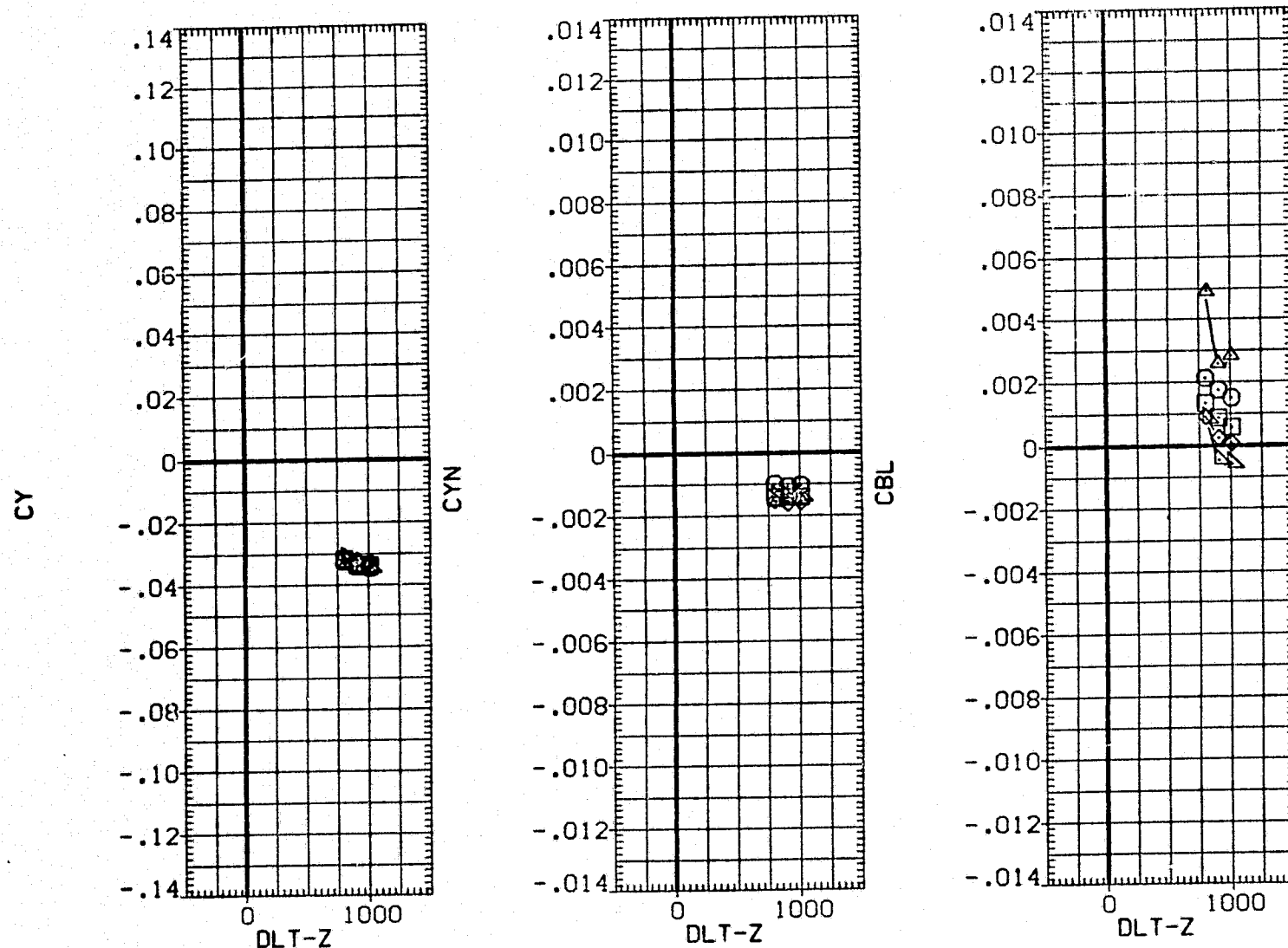


FIGURE 47 EFFECT OF ELEVON ON ORBITER CHARACT. (MACH= 5.93,DLT-Y= 60,DLTBTA=3)
 (A)DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION
(ATRO63)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	.000	SREF 2690.0000 SQ.FT.
(ATRO60)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	.000	LREF 1290.3000 IN.
(ATRO08)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	.000	BREF 1290.3000 IN.
(ATRO97)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	.000	XMRP 1360.1000 IN. XT
						YMRP .0000 IN. YT
						ZMRP 416.4000 IN. ZT
						SCALE .0100

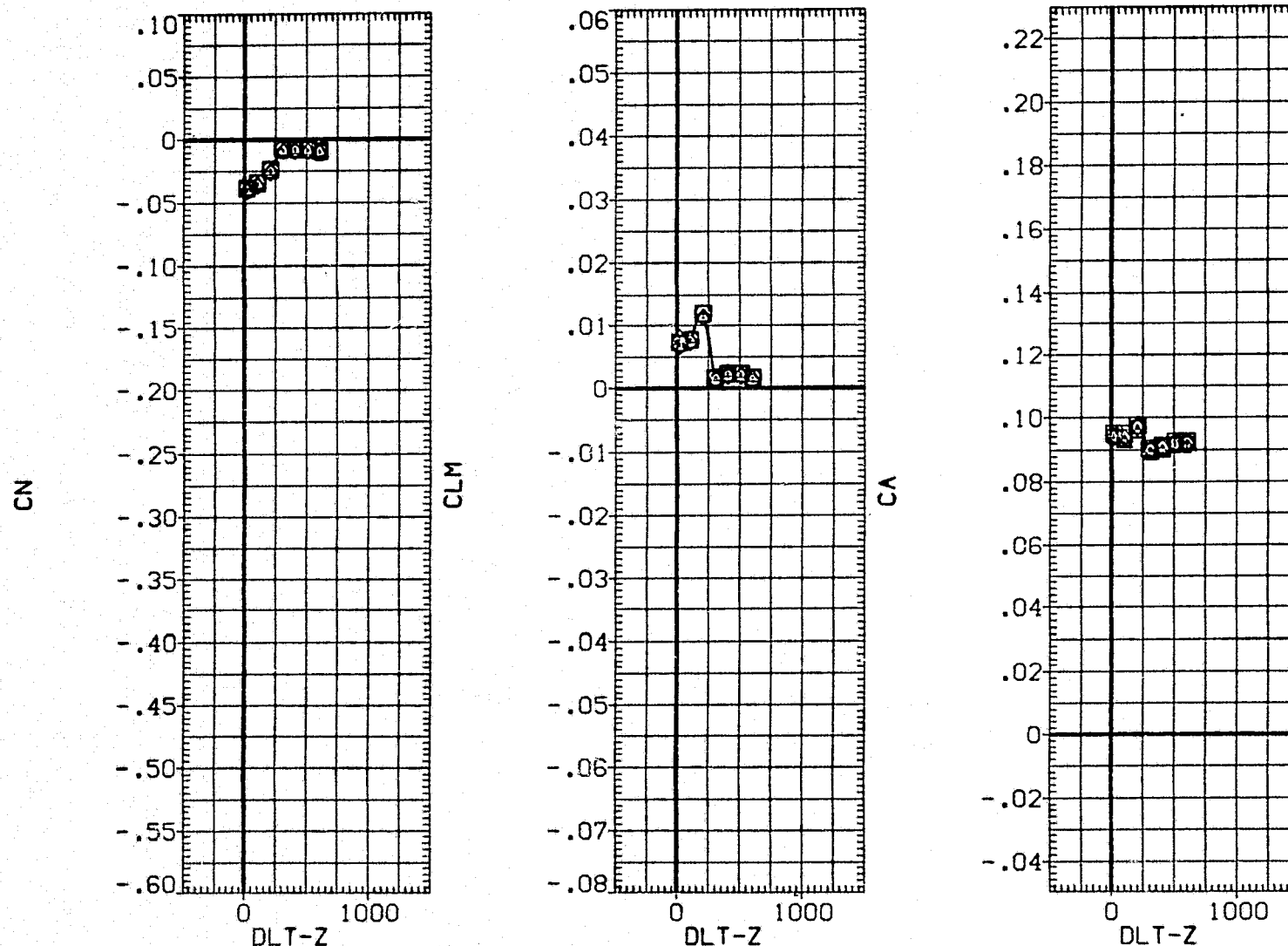


FIGURE 48 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, ALPHA= 0, BETA= 3)

(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATRO63)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	.000	SREF	2690.0000 SQ.FT.
(ATRO60)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	.000	LREF	1290.3000 IN.
(ATRO08)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	.000	BREF	1290.3000 IN.
(ATRO97)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	.000	XMRP	1360.1000 IN. XT
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

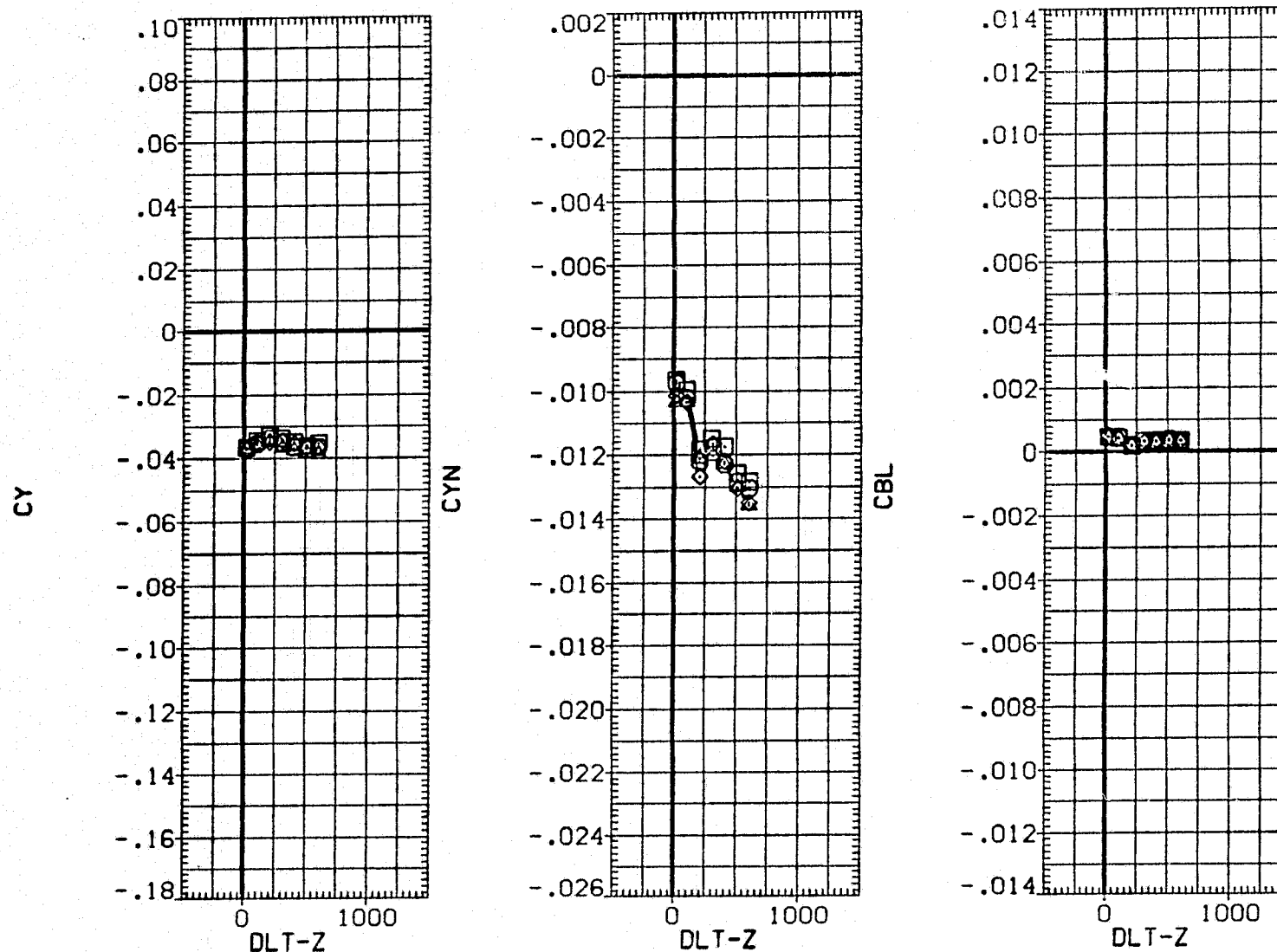


FIGURE 48 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, ALPHA= 0, BETA= 3)

(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	BETA	DLTALF	REFERENCE INFORMATION		
(ATRO64)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	-10.000	SREF	2690.0000	SQ.FT.
(ATRO61)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	-10.000	LREF	1290.3000	IN.
(ATRO10)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	-10.000	BREF	1290.3000	IN.
(ATRO98)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	-10.000	XMRP	1360.1000	IN. YT
						YMRP	.0000	IN. YT
						ZMRP	416.4000	IN. ZT
						SCALE	.0100	

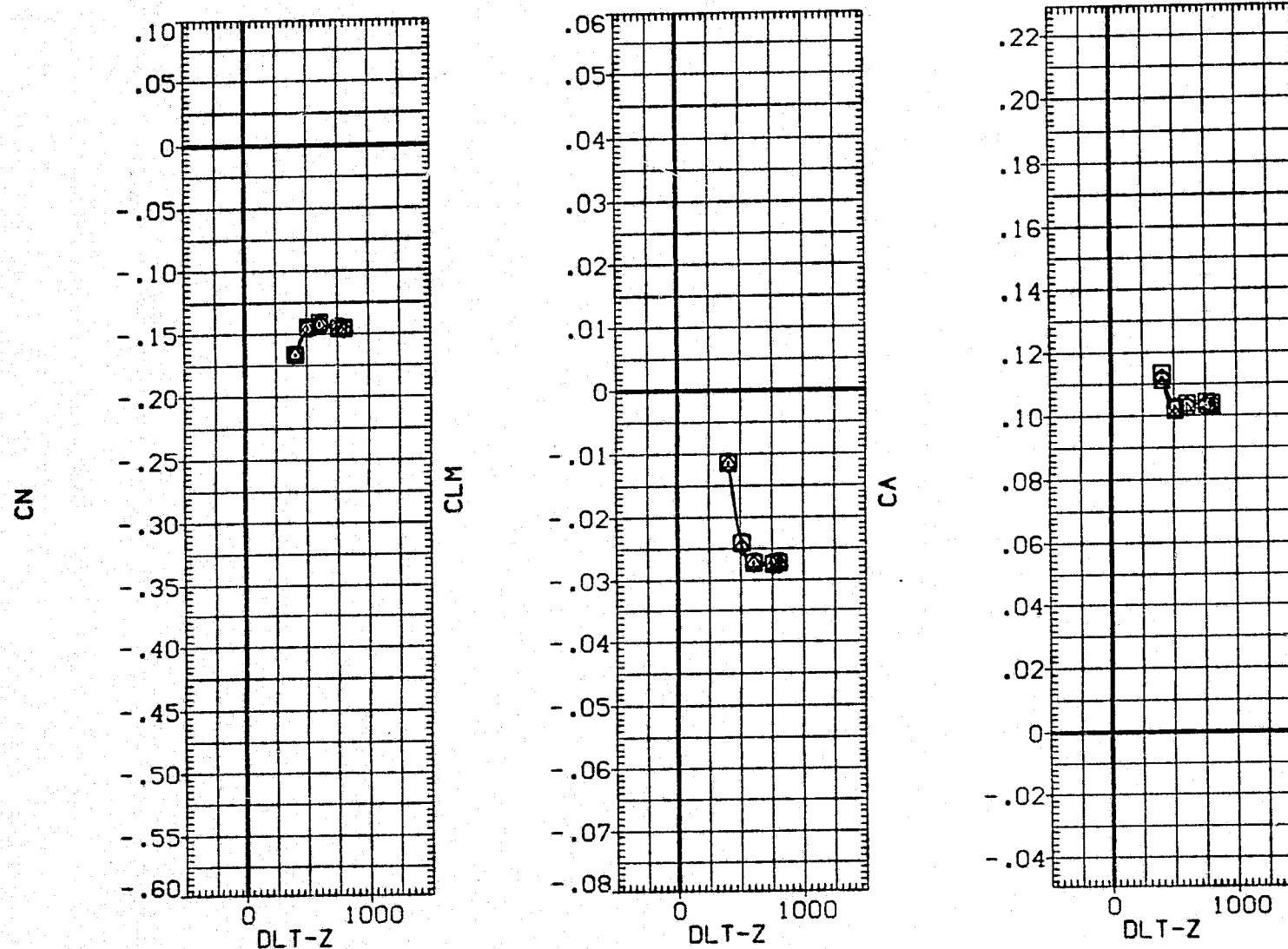


FIGURE 48 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, ALPHA= 0, BETA= 3)

(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	BETA	DLTALF	REFERENCE INFORMATION	
(ATRO64)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	-10.000	SREF	2690.0000 SQ.FT.
(ATRO61)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	-10.000	LREF	1290.3000 IN.
(ATRO10)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	-10.000	BREF	1290.3000 IN.
(ATRO98)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	-10.000	AMRP	1360.1000 IN. XT
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

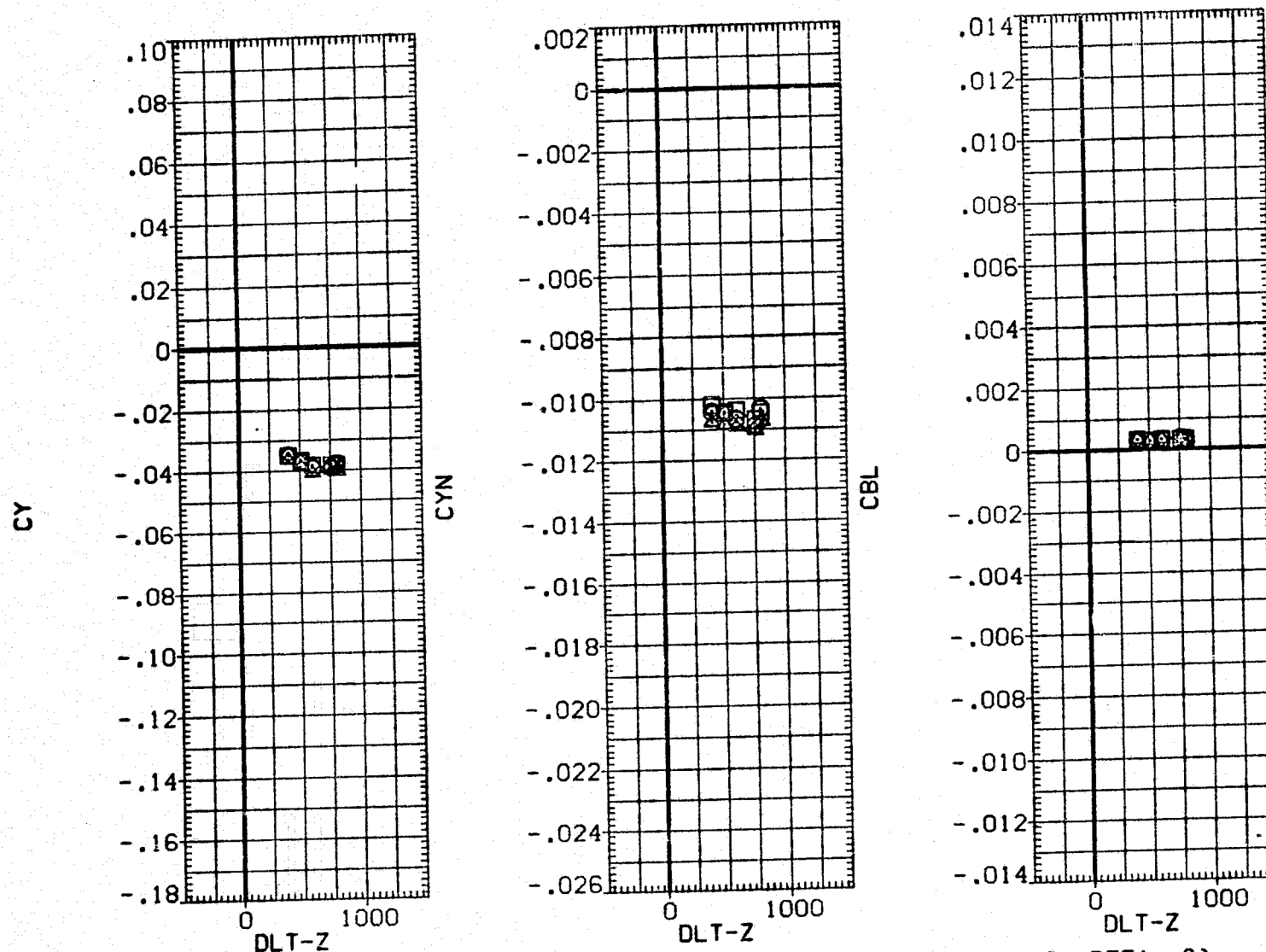


FIGURE 48 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, ALPHA= 0, BETA= 3)
(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATRO65)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	-20.000	SREF	2690.0000 SQ.FT.
(ATRO62)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	-20.000	LREF	1290.3000 IN.
(ATRO13)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	.000	BREF	1290.3000 IN.
(ATRO99)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	-20.000	XMRP	1360.1000 IN. XT
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

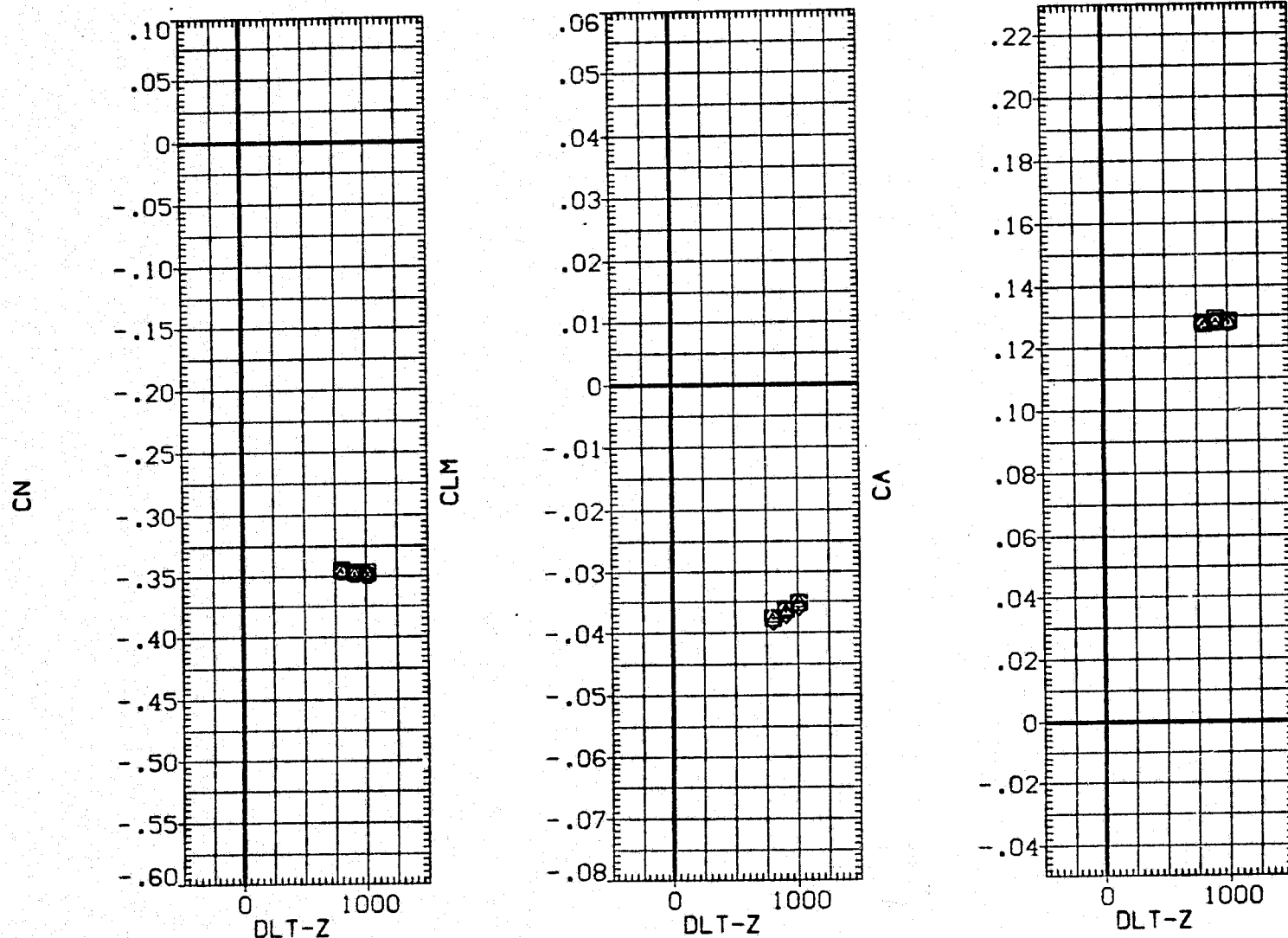


FIGURE 48 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, ALPHA= 0, BETA= 3)

(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	BETA	DLTALF	REFERENCE INFORMATION		
[ATRO85]	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	-20.000	SREF	2690.0000	SQ.FT.
[ATRO82]	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	-20.000	LREF	1290.3000	IN.
[ATRO13]	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	.000	BREF	1290.3000	IN.
[ATRO99]	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	-20.000	XMRP	1360.1000	IN. XT
						YMRP	.0000	IN. YT
						ZMRP	416.4000	IN. ZT
						SCALE	.0100	

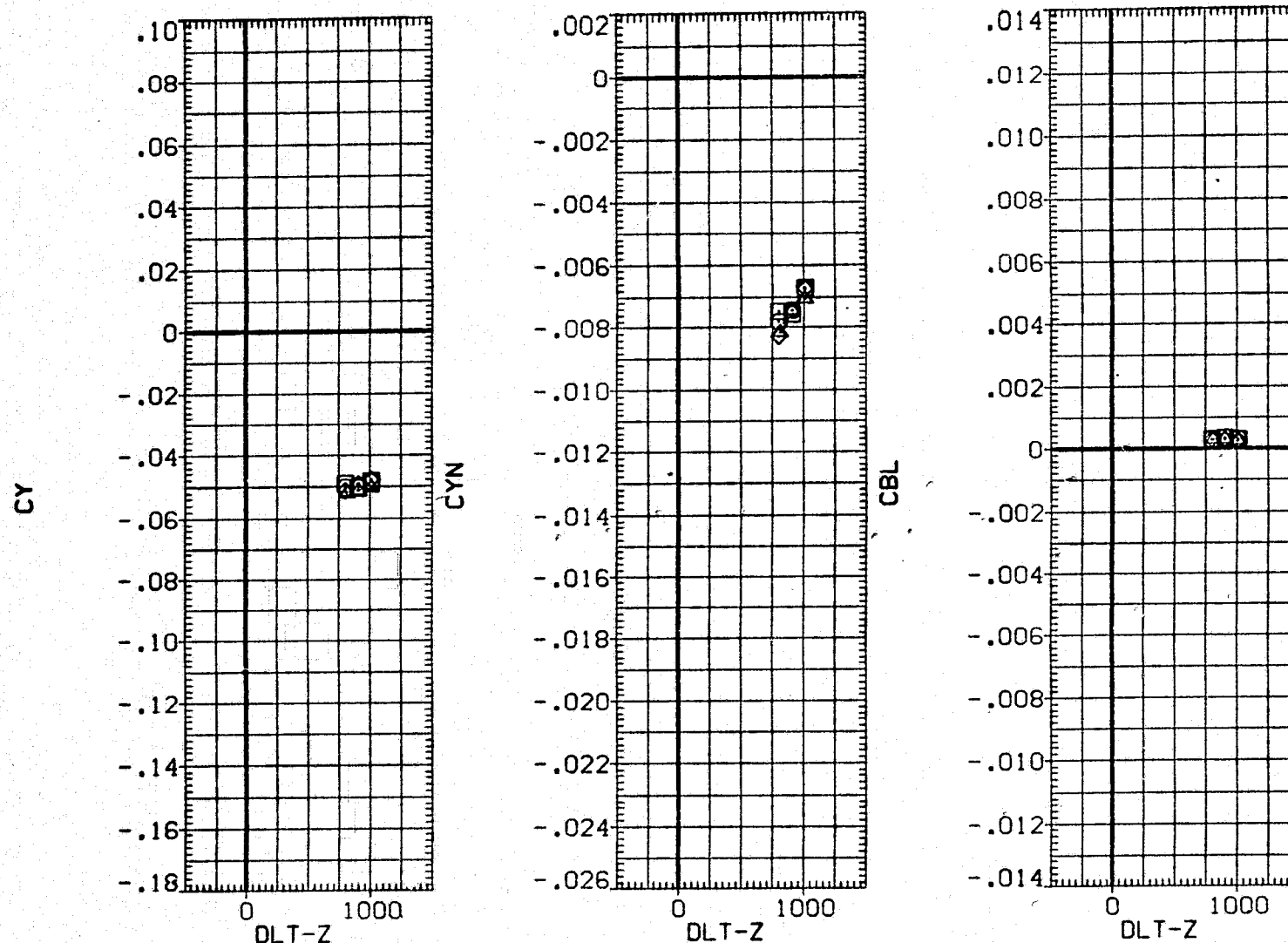


FIGURE 48 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, ALPHA= 0, BETA= 3)

(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATRI61)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	.000	.000	SREF	2690.0000 SQ.FT.
(ATRI55)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	.000	.000	LREF	1290.3000 IN.
(ATRI28)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	.000	.000	BREF	1290.3000 IN.
(ATRI49)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	.000	.000	XMRP	1360.1000 IN. XT
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

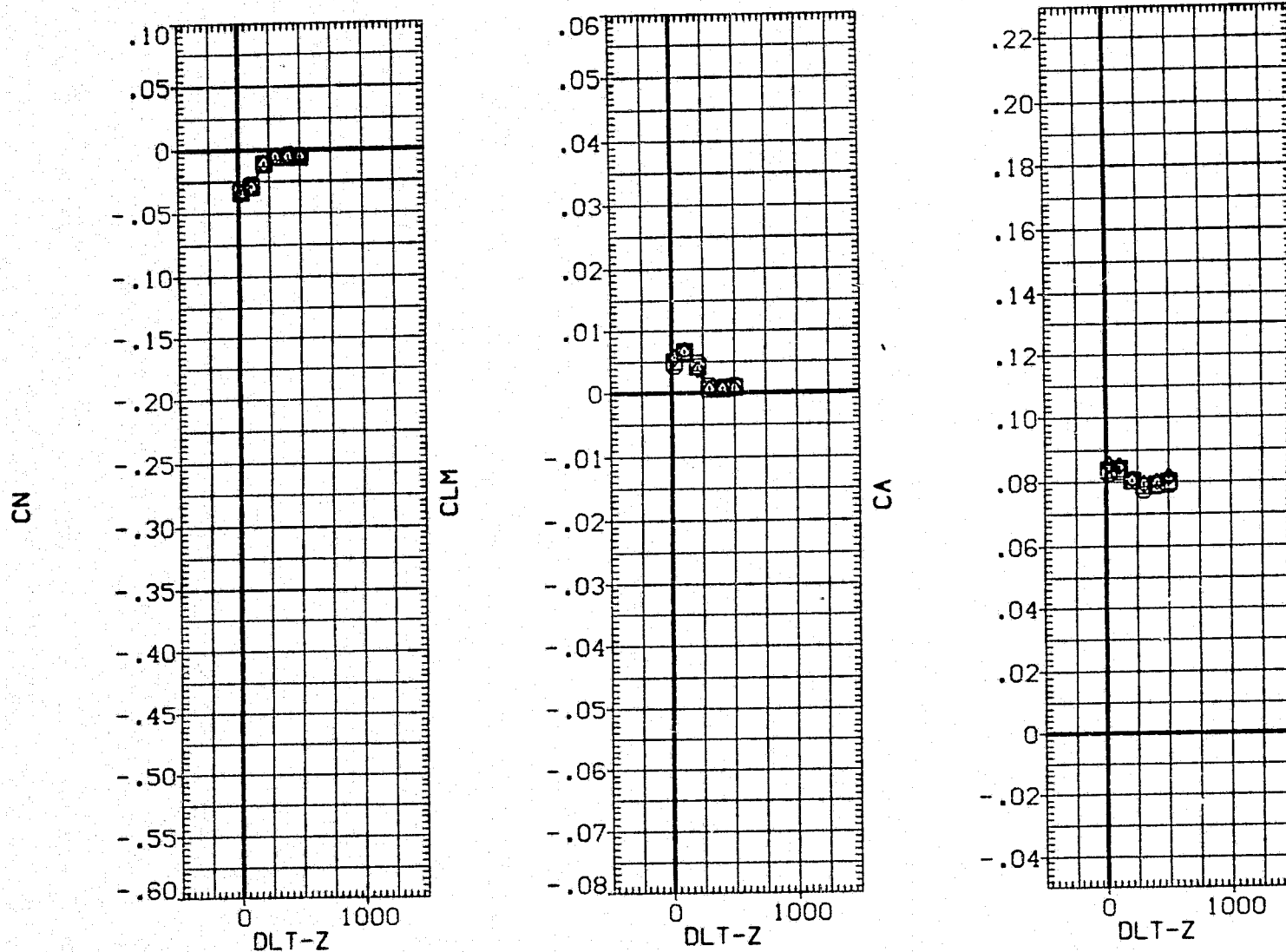


FIGURE 49 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATRI61)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	.000	.000	SREF	2690.0000 SQ. FT.
(ATRI55)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	.000	.000	LREF	1290.3000 IN.
(ATRI28)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	.000	.000	BREF	1290.3000 IN.
(ATRI49)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	.000	.000	XMRP	1360.1000 IN. XT
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

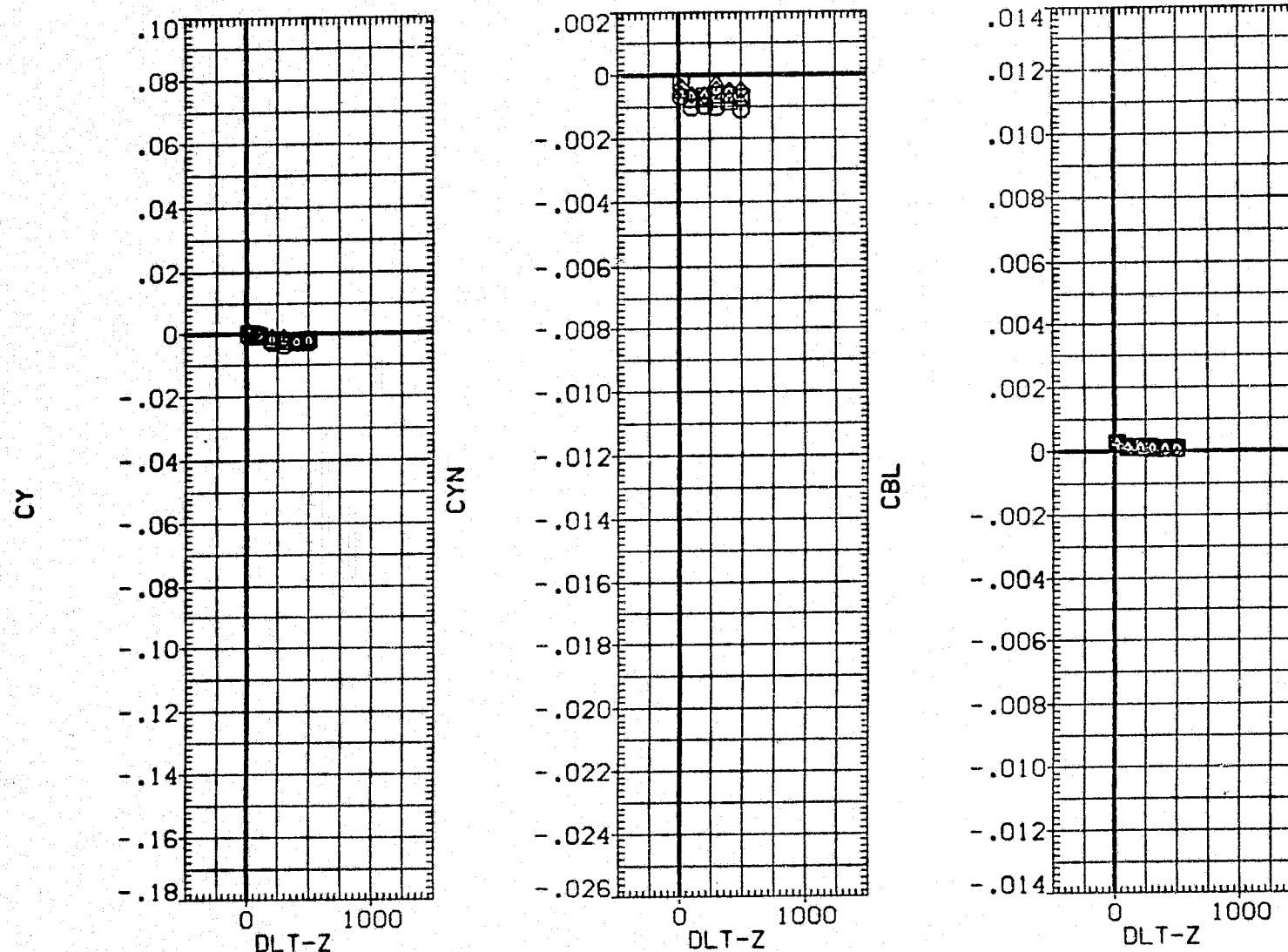


FIGURE 49 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	Aileron	BETA	DLTALF	REFERENCE INFORMATION		
(ATR162)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	.000	-10.000	SREF	2690.0000	50.FT.
(ATR156)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	.000	-10.000	LREF	1290.3000	IN.
(ATR130)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	.000	-10.000	BREF	1290.3000	IN.
(ATR150)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	.000	-10.000	XMRP	1360.1000	IN. YT
						YMRP	.0000	IN. YT
						ZMRP	416.4000	IN. ZT
						SCALE	.0100	

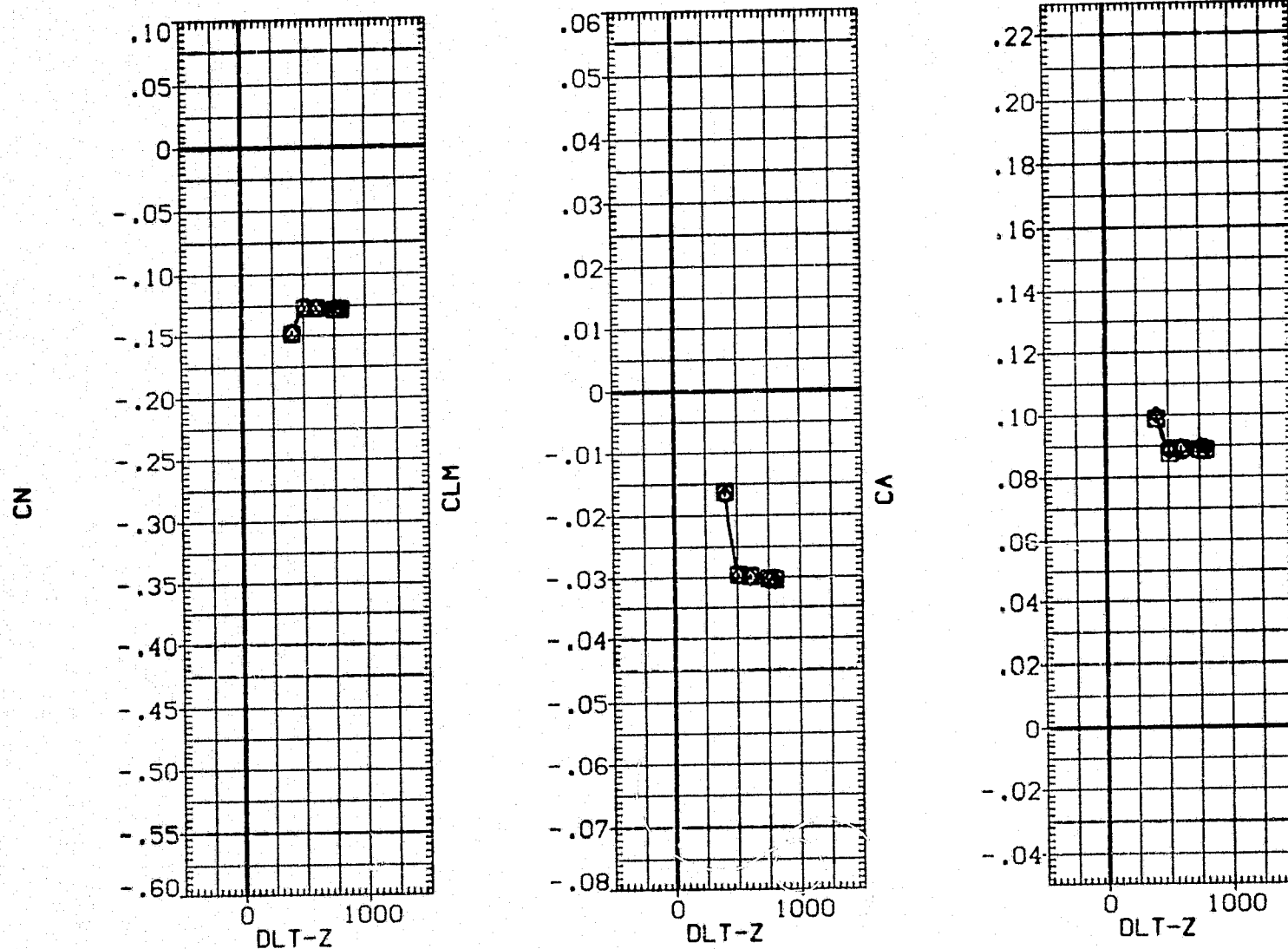


FIGURE 49 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)

(A) DLT-X = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(ATR162) □ AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)
 (ATR156) □ AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)
 (ATR130) X AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)
 (ATR150) X AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)

ELEVON AILRON
 -40.000 .000
 -20.000 .000
 .000 .000
 .000 15.000

BETA DLTALF
 .000 -10.000
 .000 -10.000
 .000 -10.000
 .000 -10.000

REFERENCE INFORMATION
 SREF 2690.0000 SQ.FT.
 LREF 1290.3000 IN.
 BREF 1290.3000 IN.
 XMRP 1360.1000 IN. XT
 YMRP .0000 IN. YT
 ZMRP 416.4000 IN. ZT
 SCALE .0100

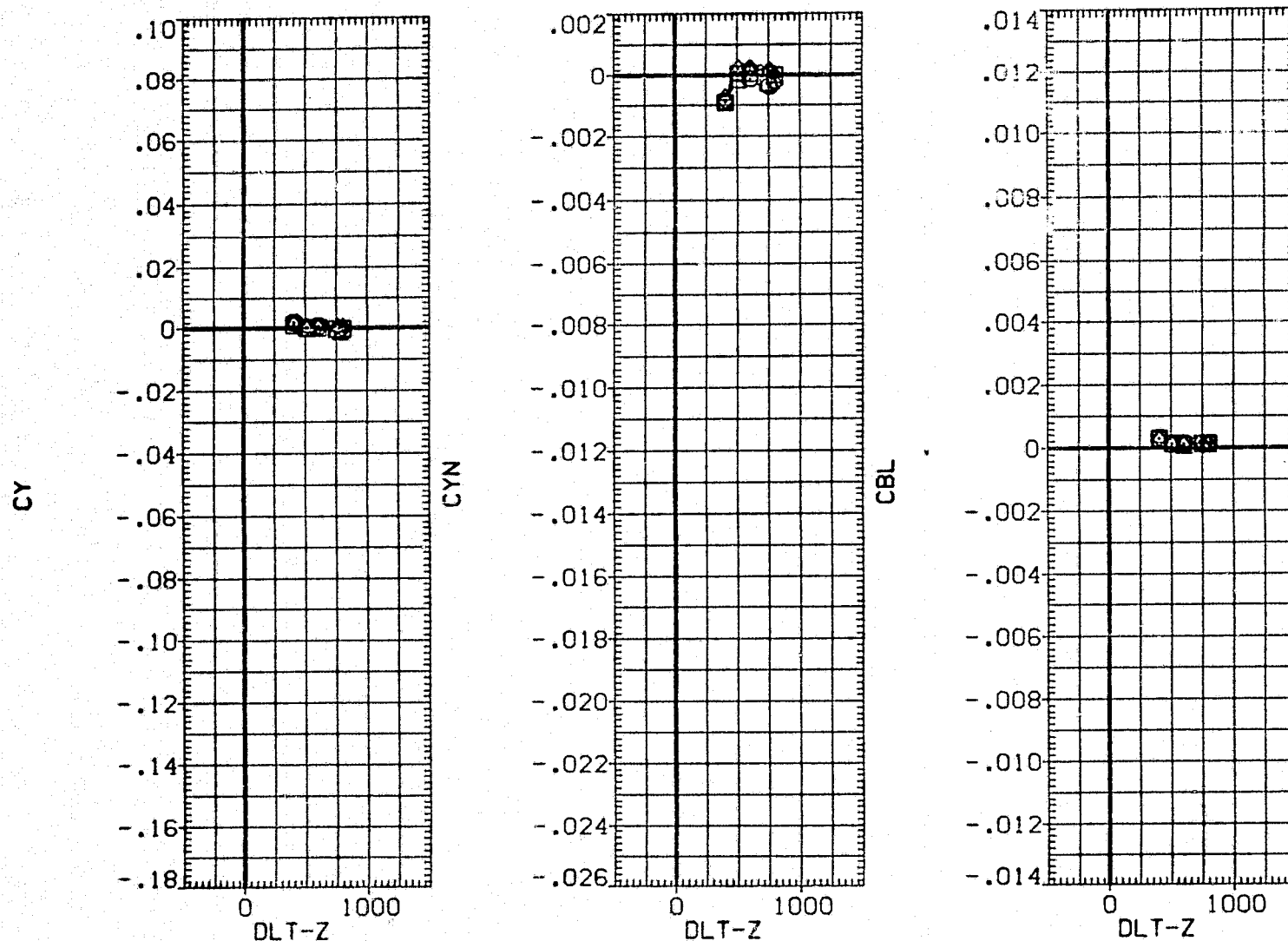


FIGURE 49 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)

(A) DLT-X = .00

PAGE 1398

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATR163)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	.000	-20.000	SREF	2690.0000 SQ.FT.
(ATR157)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	.000	-20.000	LREF	1290.3000 IN.
(ATR151)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	.000	-20.000	BREF	1290.3000 IN.
						XMRP	1360.1000 IN. XT
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

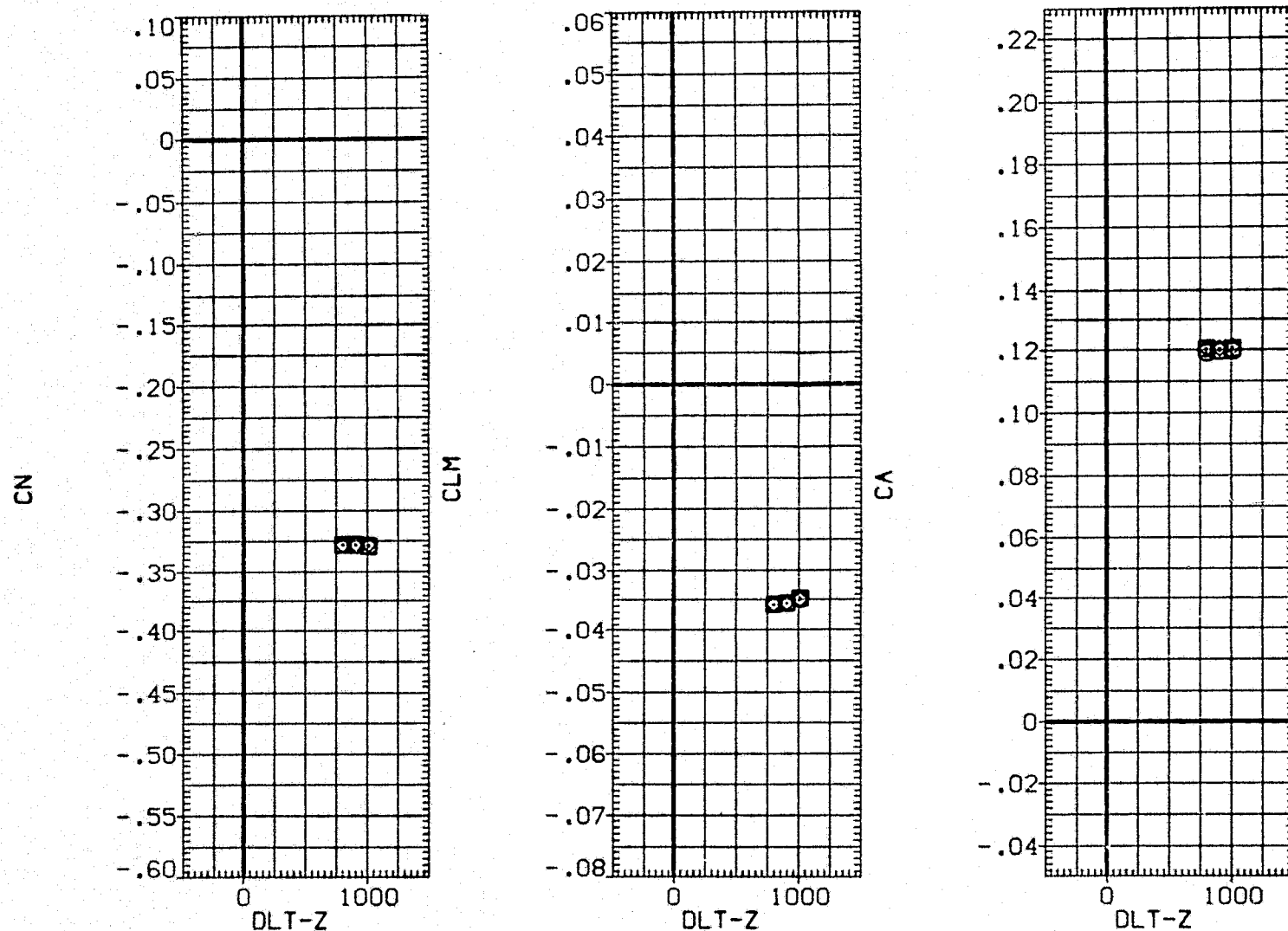


FIGURE 49 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	BETA	DLTALF	REFERENCE INFORMATION	
(ATR163)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	.000	-20.000	SREF	2690.0000 SQ.FT.
(ATR157)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	.000	-20.000	LREF	1290.3000 IN.
(ATR151)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	.000	-20.000	BREF	1290.3000 IN.
						XMRP	1360.1000 IN. XT
						YMRP	.0000 IN. Y1
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

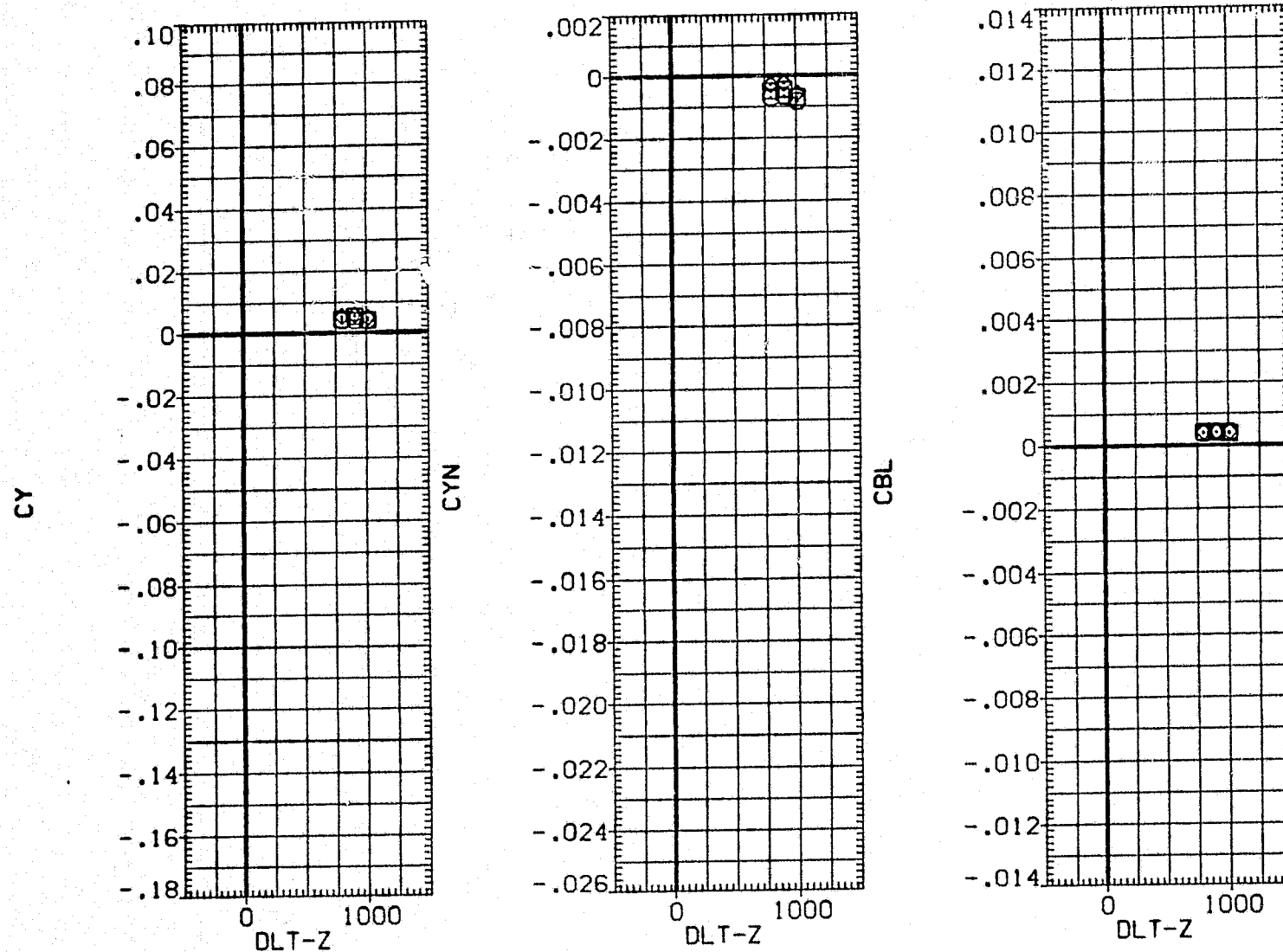


FIGURE 49 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA= 0, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATR164)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	.000	.000	SREF	2690.0000 SQ.FT.
(ATR158)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	.000	.000	LREF	1290.3000 IN.
(ATR171)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	.000	.000	BREF	1290.3000 IN.
(ATR152)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	.000	.000	XMRP	1360.1000 IN. XT
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

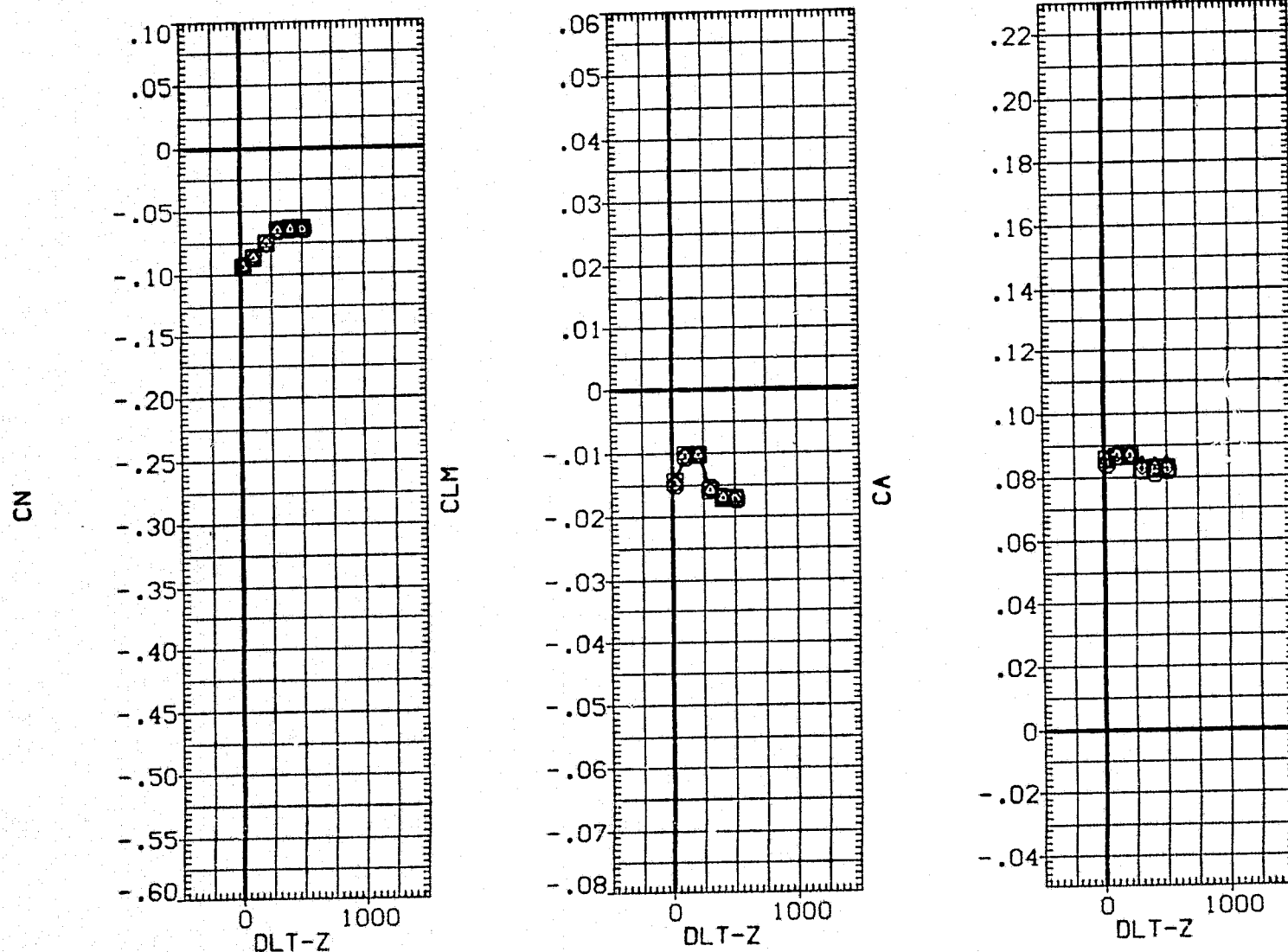


FIGURE 50 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(ATR164) AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)
 (ATR158) AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)
 (ATR171) AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)
 (ATR152) AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)

ELEVON AILRON BETA
 -40.000 .000 .000
 -20.000 .000 .000
 .000 .000 .000
 .000 15.000 .000

DLTALF REFERENCE INFORMATION
 SREF 2690.0000 SQ.FT.
 LREF 1290.3000 IN.
 BREF 1290.3000 IN.
 XMRP 1360.1000 IN. XT
 YMRP .0000 IN. YT
 ZMRP 416.4000 IN. ZT
 SCALE .0100

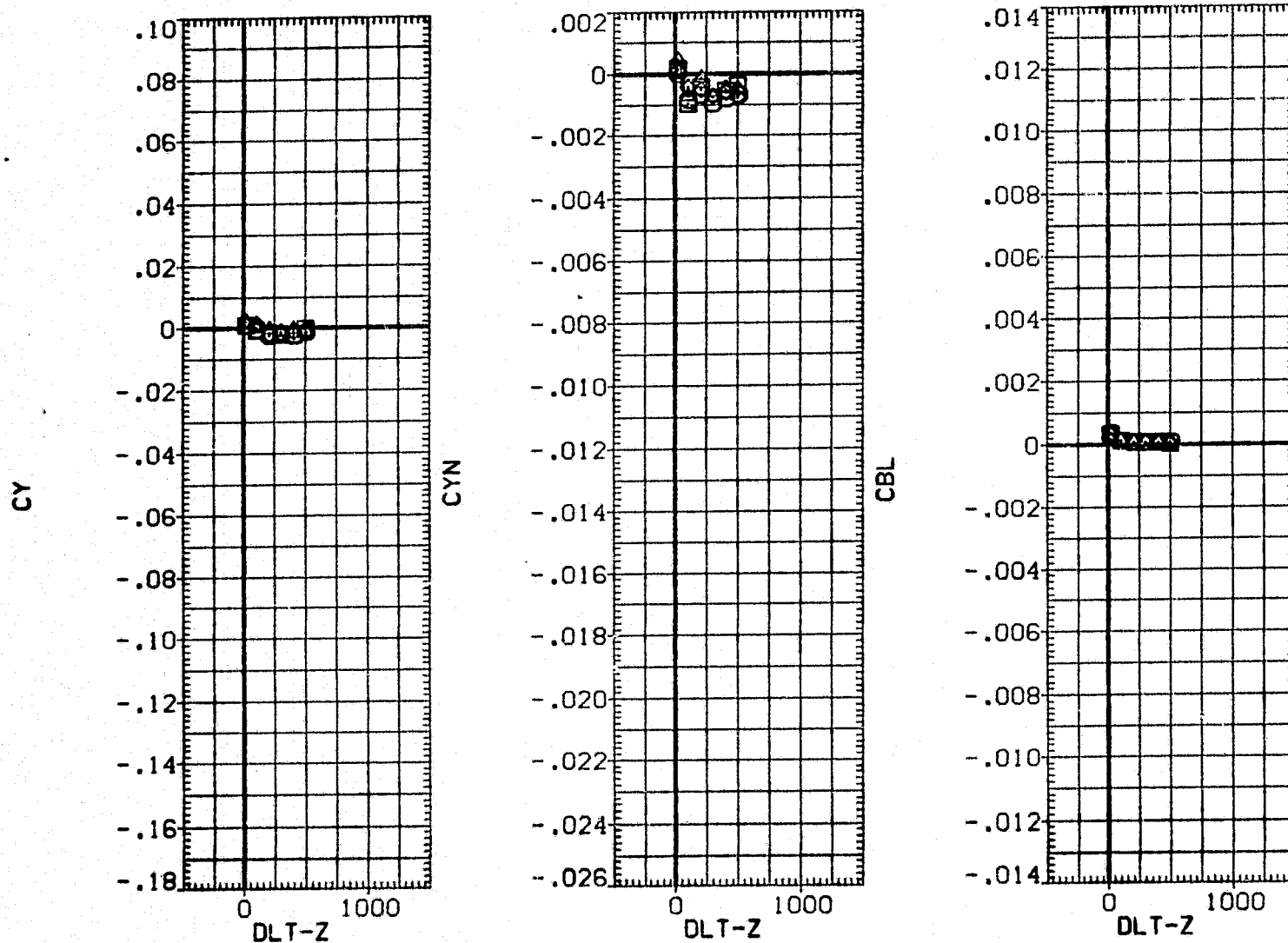


FIGURE 50 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)

(A)DLT-X = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(ATR165)	□	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)
(ATR159)	○	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)
(ATR173)	◇	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)
(ATR153)	△	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)

ELEVON	AILRON	BETA	DLTALF
-40.000	.000	.000	-10.000
-20.000	.000	.000	-10.000
.000	.000	.000	-10.000
.000	15.000	.000	-10.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	1290.3000	IN.
BREF	1290.3000	IN.
XMRP	1360.1000	IN. XT
YMRP	.0000	IN. YT
ZMRP	416.4000	IN. ZT
SCALE	.0100	

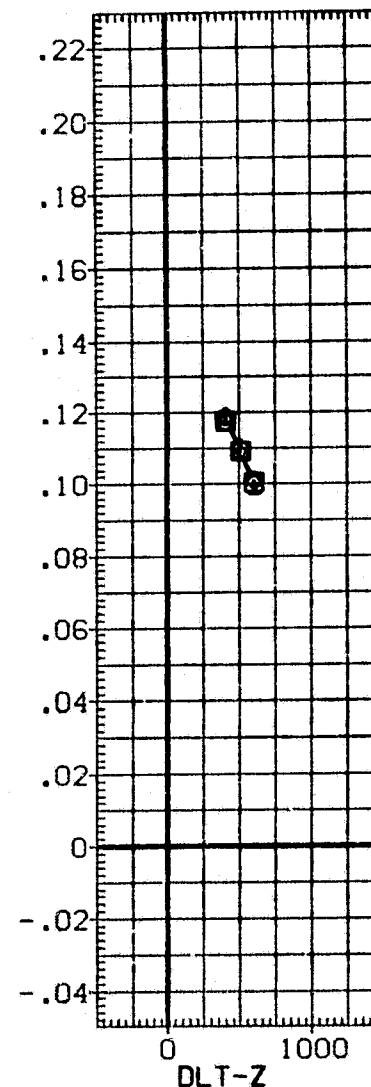
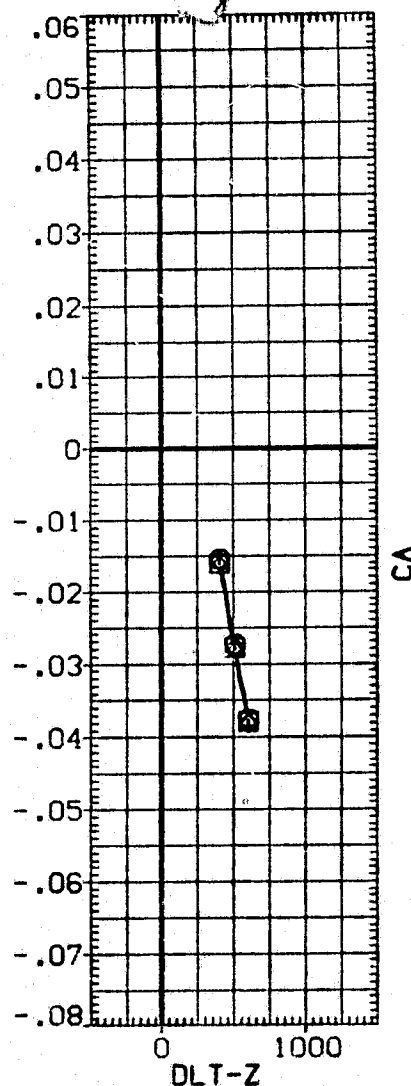
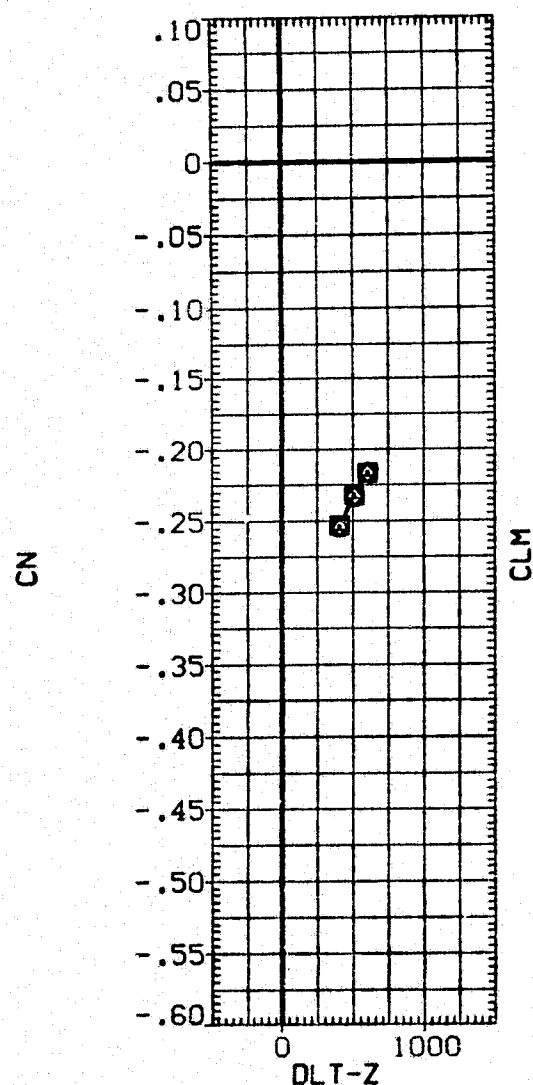


FIGURE 50 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)
(A)DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATRI65)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	.000	-10.000	SREF	2690.0000 SQ.FT.
(ATRI59)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	.000	-10.000	LREF	1290.3000 IN.
(ATRI73)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	.000	-10.000	BREF	1290.3000 IN.
(ATRI53)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	.000	-10.000	XMRF	1360.1000 IN. XT
						YMRF	.0000 IN. YT
						ZMRF	416.4000 IN. ZT
						SCALE	.0100

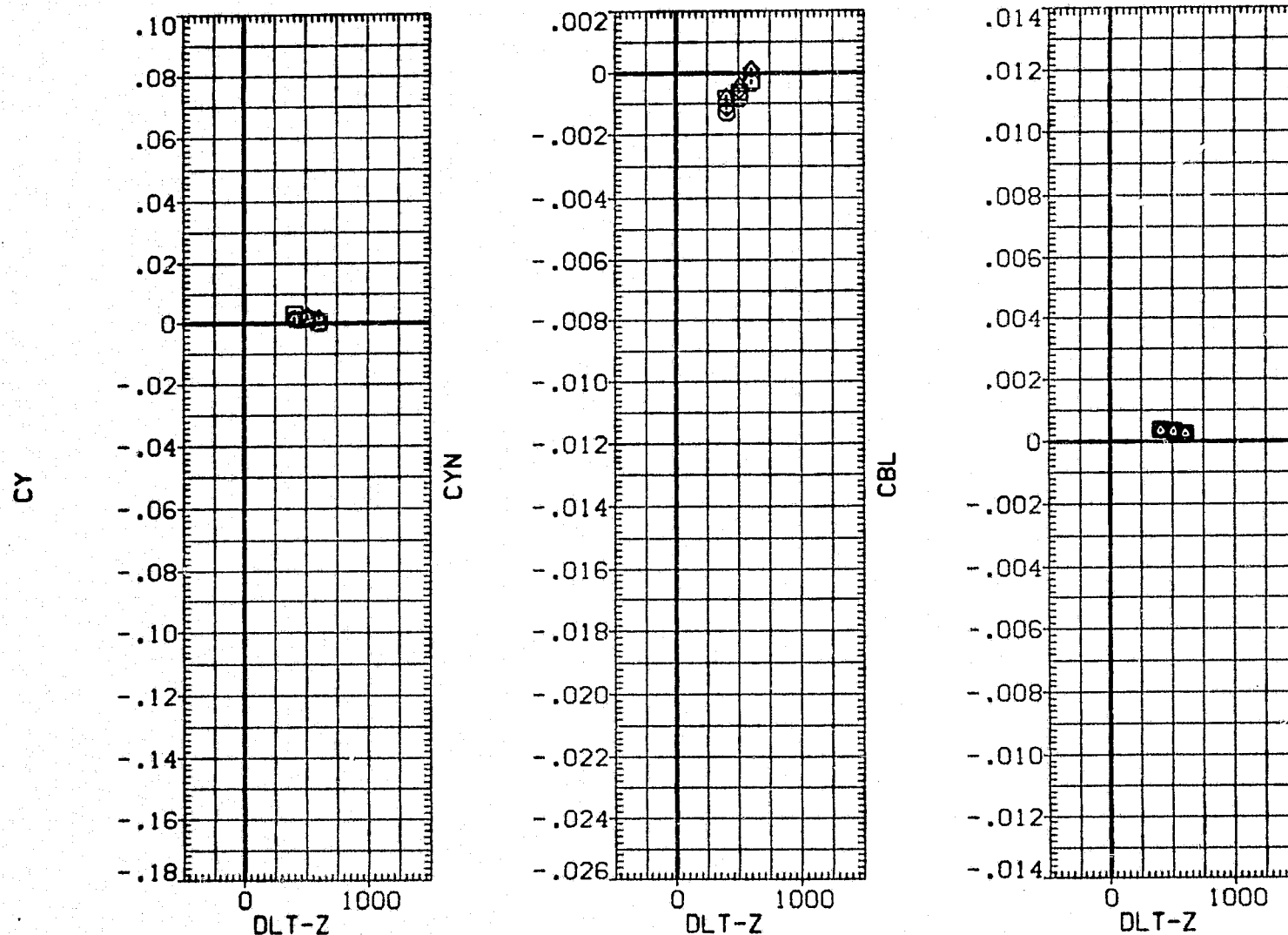


FIGURE 50 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)

(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATR166)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	.000	-20.000	SREF	2690.0000 SQ.FT.
(ATR160)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	.000	-20.000	LREF	1290.3000 IN.
(ATR176)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	.000	-20.000	BREF	1290.3000 IN.
(ATR154)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	.000	-20.000	XMRP	1360.1000 IN. XT
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

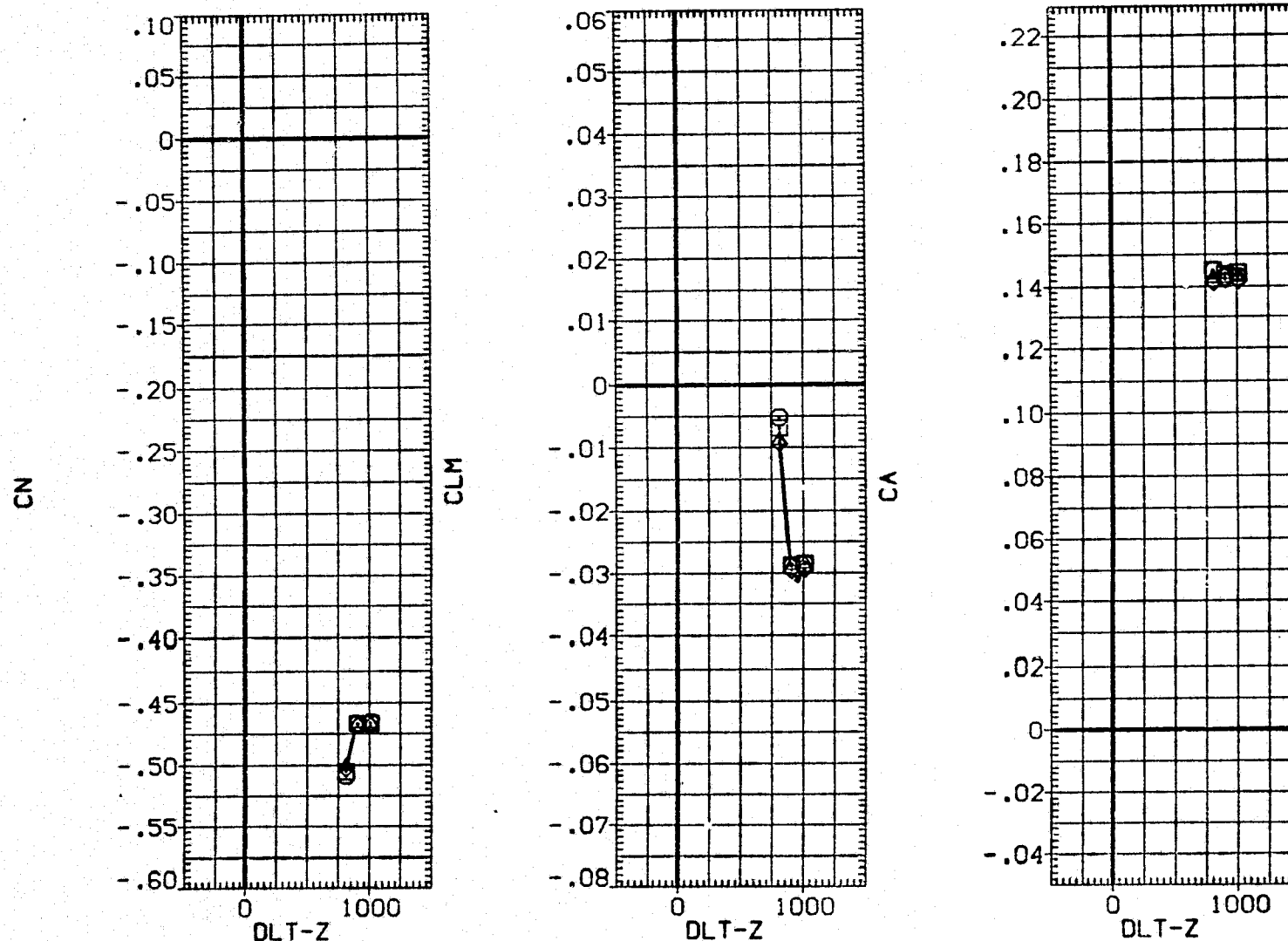


FIGURE 50 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)

(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATR166)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	.000	-20.000	SREF	2690.0000 SQ.FT.
(ATR160)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	.000	-20.000	LREF	1290.3000 IN.
(ATR176)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	.000	-20.000	BREF	1290.3000 IN.
(ATR154)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	.000	-20.000	XMRP	1360.1000 IN. XY
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

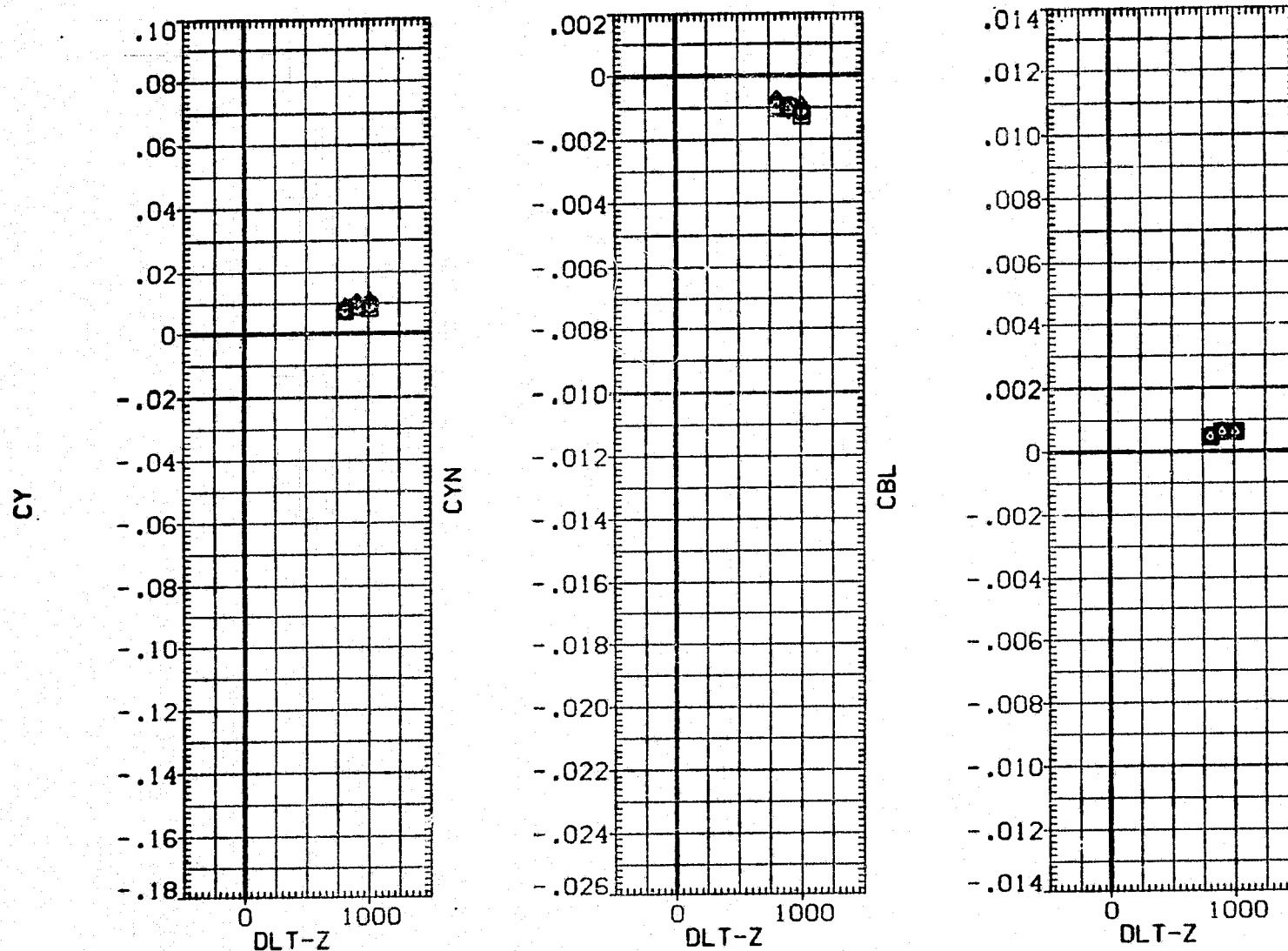


FIGURE 50 EFFECT OF ELEVON ON ET CHARACT. (MACH= 7.98, ALPHA=-5, BETA= 0)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
[ATR273]	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	.000	SREF	2690.0000	SQ.FT.
[ATR215]	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	.000	LREF	1290.3000	IN.
[ATR293]	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	3.000	.000	BREF	1290.3000	IN.
[ATR310]	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	2.000	.000	XMRP	1360.1000	IN. XT
						YMRP	.0000	IN. YT
						ZMRP	416.4000	IN. ZT
						SCALE	.0100	

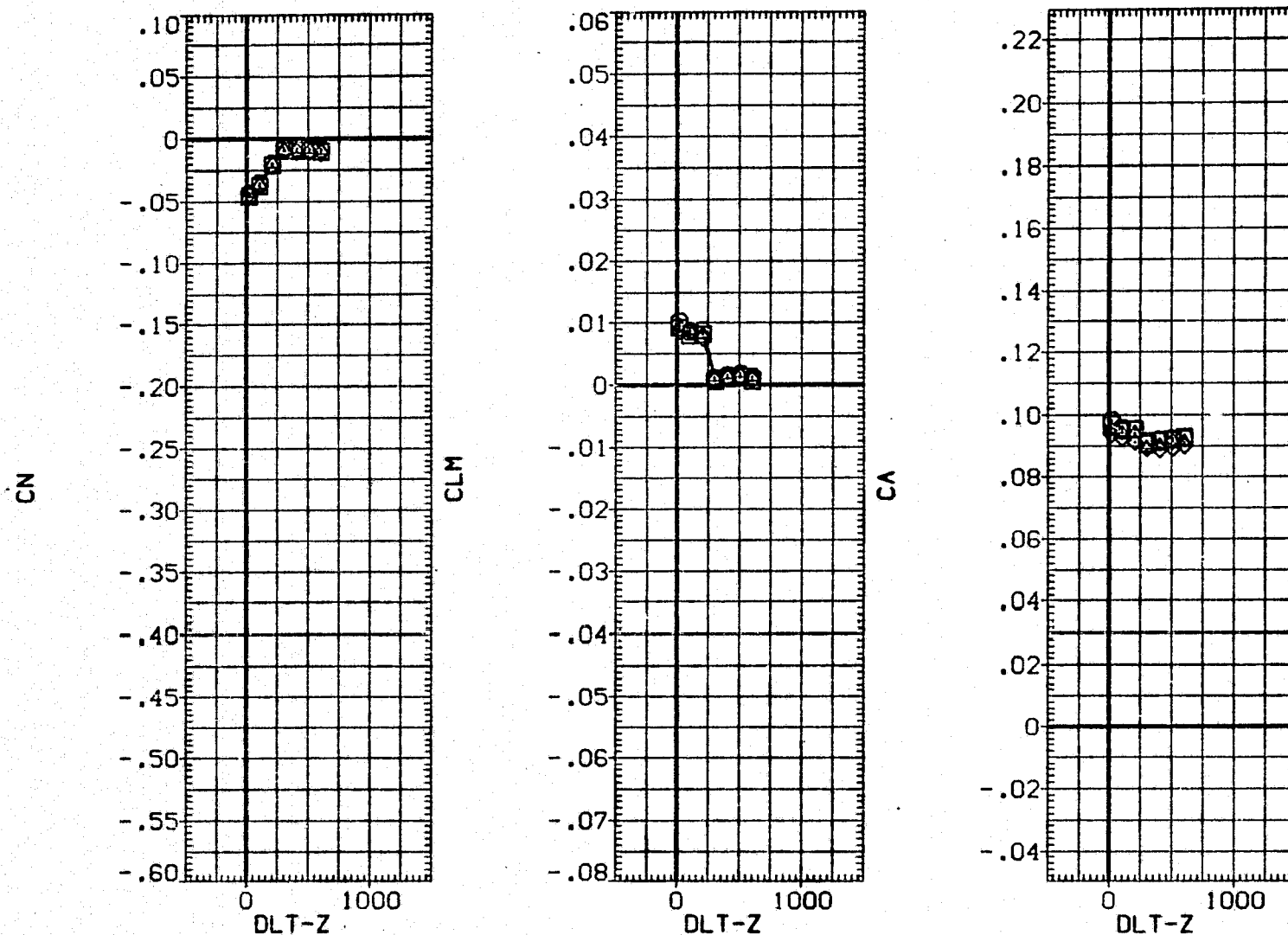


FIGURE 51 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, DLT-Y= 60, DLTBTA= 3)
(A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATR273)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	.000	SREF	2690.0000 SG.FT.
(ATR215)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	.000	LREF	1290.3000 IN.
(ATR293)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	3.000	.000	BREF	1290.3000 IN.
(ATR310)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	.000	XMRP	1360.1000 IN. XT
						YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

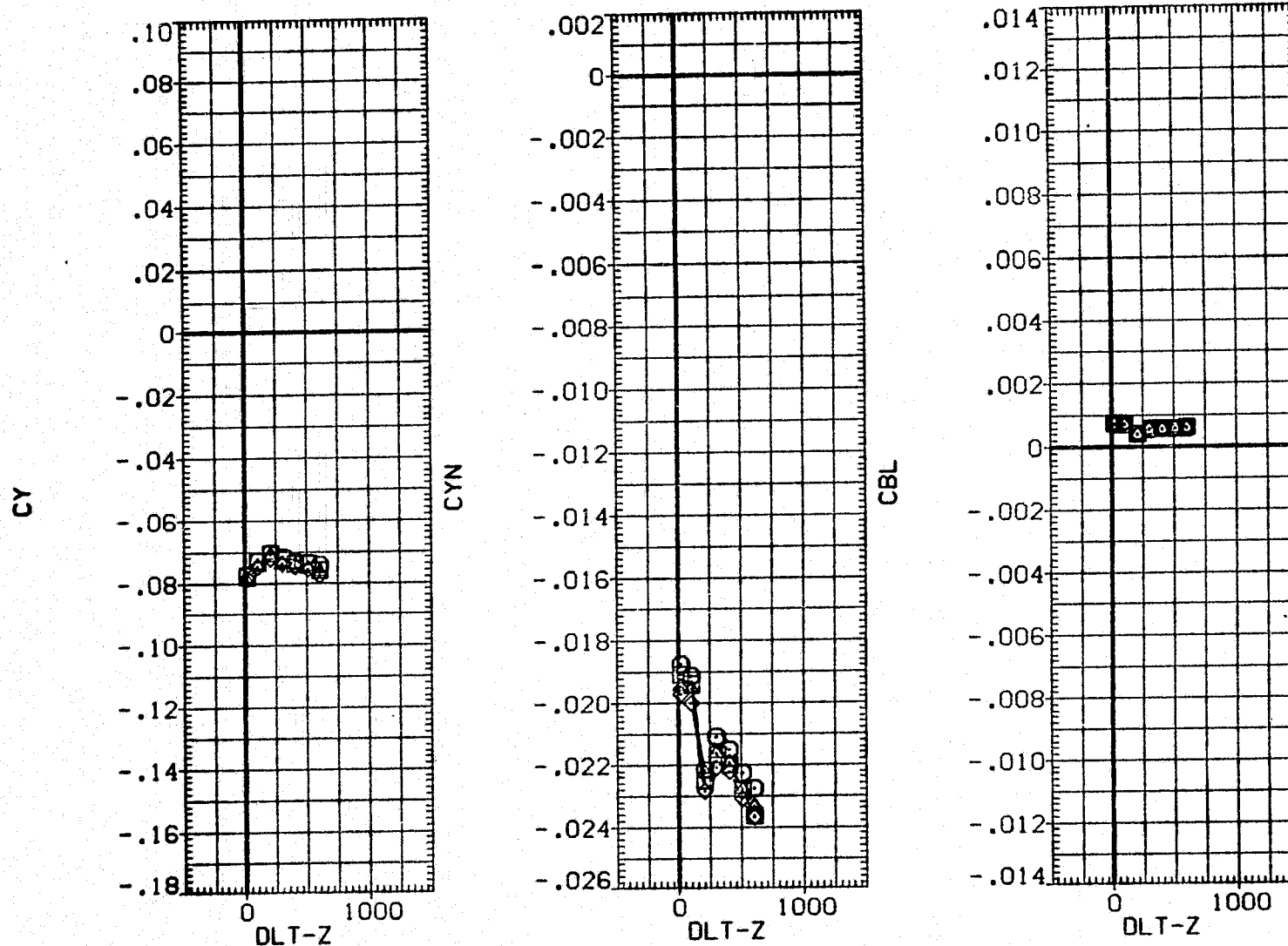


FIGURE 51 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, DLT-Y= 60, DLTBTA= 3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATR277)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	-10.000	SREF	2690.0000 SQ.FT.
(ATR274)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	-10.000	LREF	1290.3000 IN.
(ATR216)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	-10.000	BREF	1290.3000 IN.
(ATR294)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	3.000	-10.000	XMRP	1360.1000 IN. XT
(ATR311)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	-10.000	YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

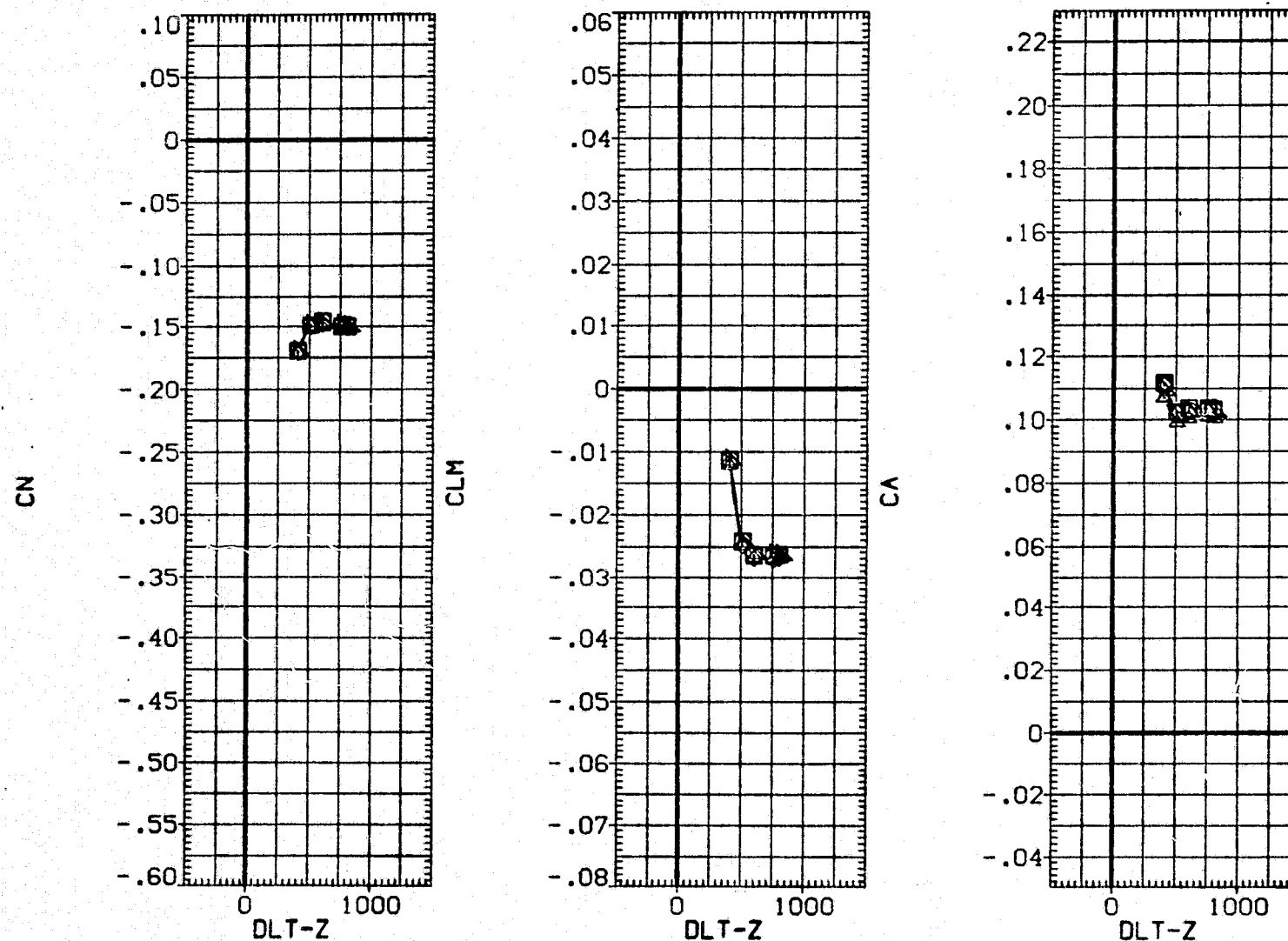


FIGURE 51 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, DLT-Y= 60, DLTBTA= 3)
(A)DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(ATR277)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	-10.000	SREF	2690.0000	50. FT.
(ATR274)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	-10.000	LREF	1290.3000	IN.
(ATR216)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	-10.000	BREF	1290.3000	IN.
(ATR294)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	3.000	-10.000	XMRP	1360.1000	IN. XT
(ATR311)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	-10.000	YMRP	.0000	IN. YT
						ZMRP	416.4000	IN. ZT
						SCALE	.0100	

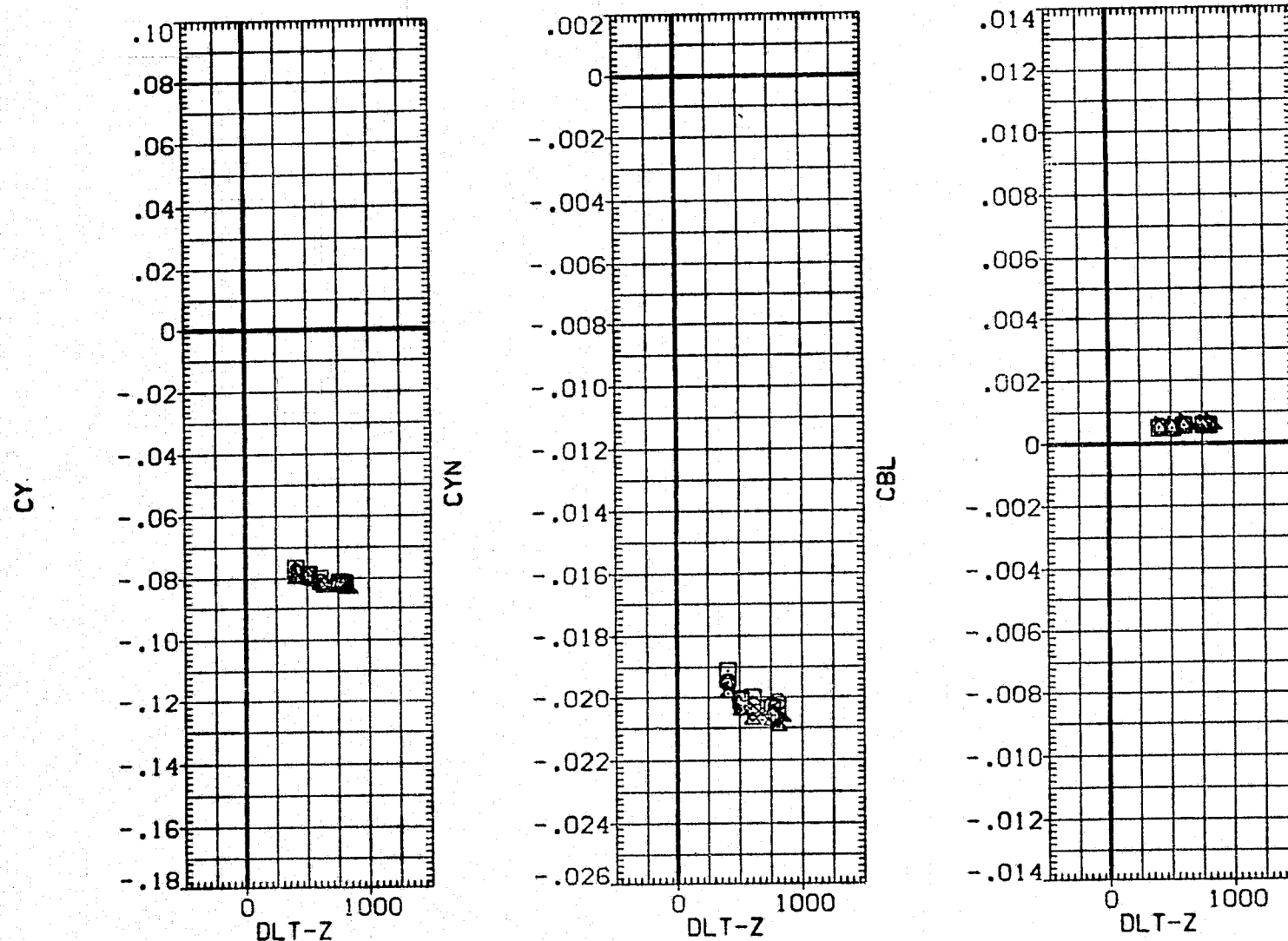


FIGURE 51 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, DLT-Y= 60, DLTBTA= 3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION	
(ATR278)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	-20.000	SREF	2690.0000 SQ.FT.
(ATR275)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	-20.000	LREF	1290.3000 IN.
(ATR218)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	-20.000	BREF	1290.3000 IN.
(ATR295)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	3.000	-20.000	XMRP	1360.1000 IN. XT
(ATR312)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	-20.000	YMRP	.0000 IN. YT
						ZMRP	416.4000 IN. ZT
						SCALE	.0100

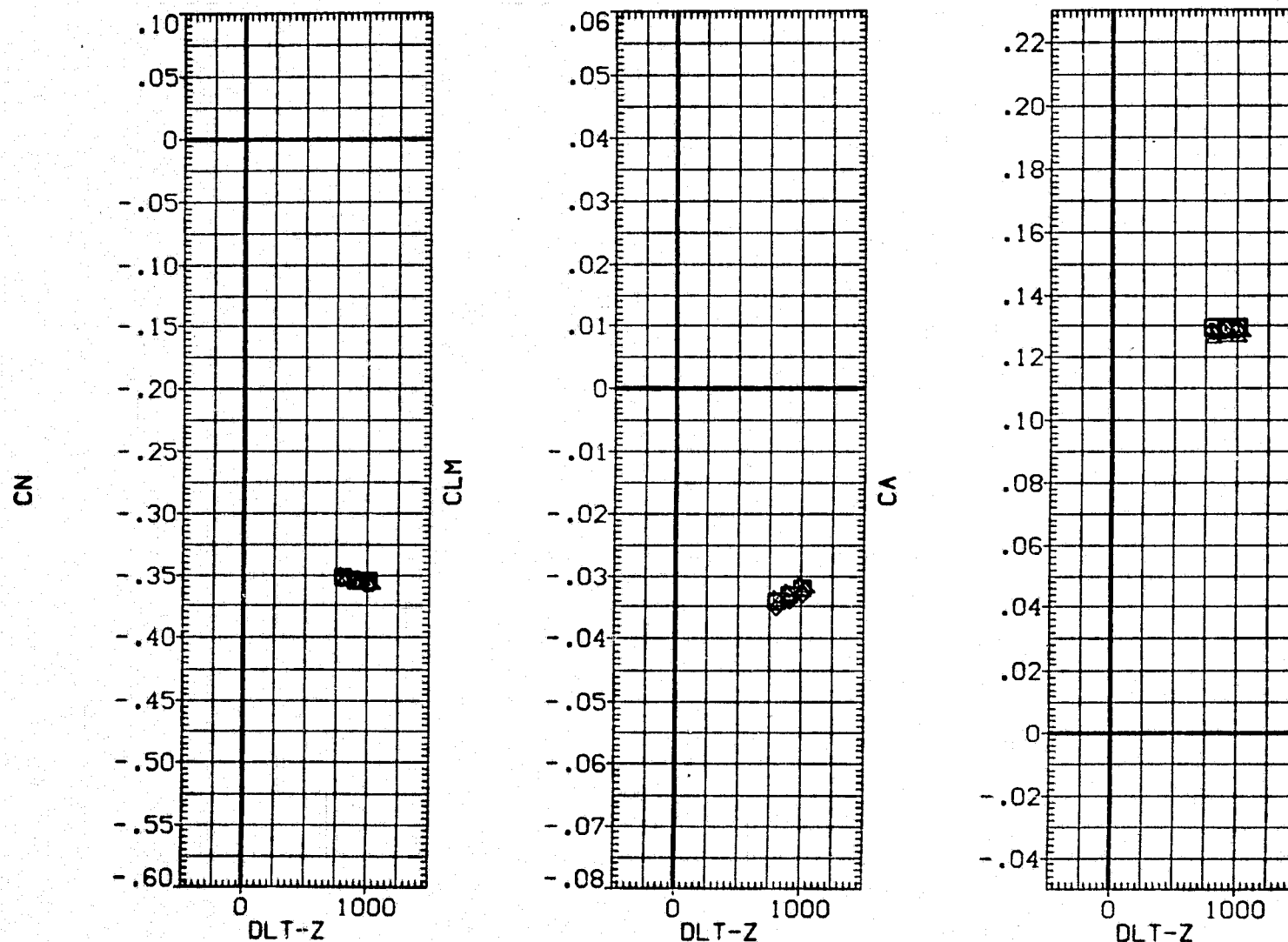


FIGURE 51 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, DLT-Y= 60, DLTBTA= 3)
 (A) DLT-X = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	BETA	DLTALF	REFERENCE INFORMATION		
(ATR278)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-40.000	.000	3.000	-20.000	SREF	2690.0000	59. FT.
(ATR275)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	-20.000	.000	3.000	-20.000	LREF	1290.3000	IN.
(ATR218)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	.000	3.000	-20.000	BREF	1290.3000	IN.
(ATR295)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	.000	15.000	3.000	-20.000	XMRP	1360.1000	IN. XT
(ATR312)	AEDC VA422(1A17) ORB AND ET SEPARATING(ET DATA)	15.000	.000	3.000	-20.000	YMRP	.0000	IN. YT
						ZMRP	416.4000	IN. YT
						SCALE	.0100	

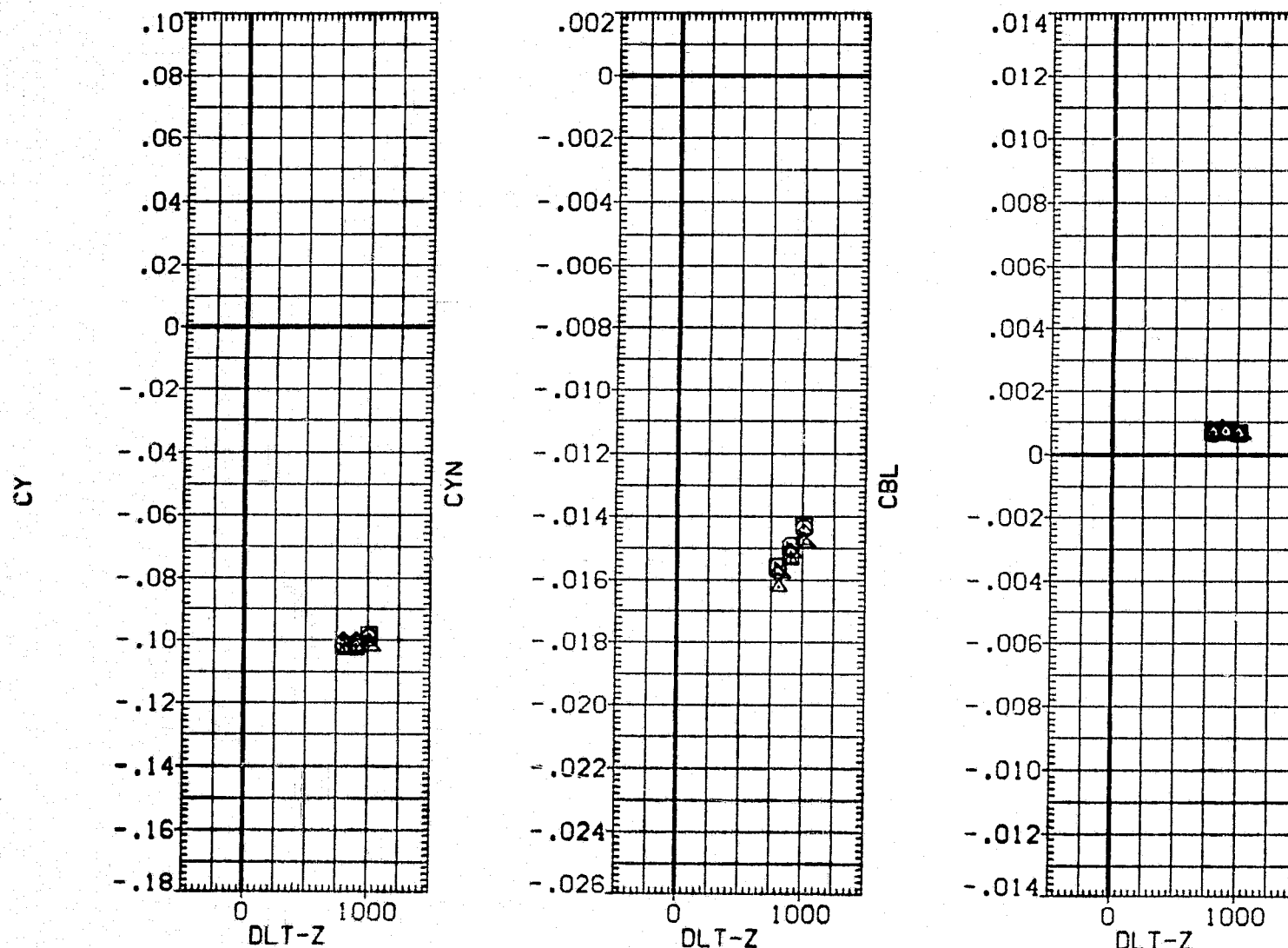


FIGURE 51 EFFECT OF ELEVON ON ET CHARACT. (MACH= 5.93, DLT-Y= 60, DLTBTA= 3)
 (A) DLT-X = .00